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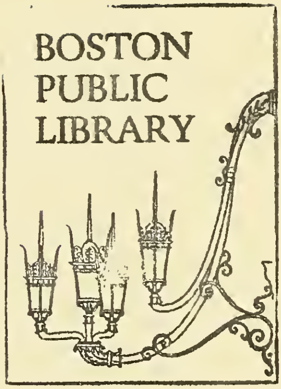

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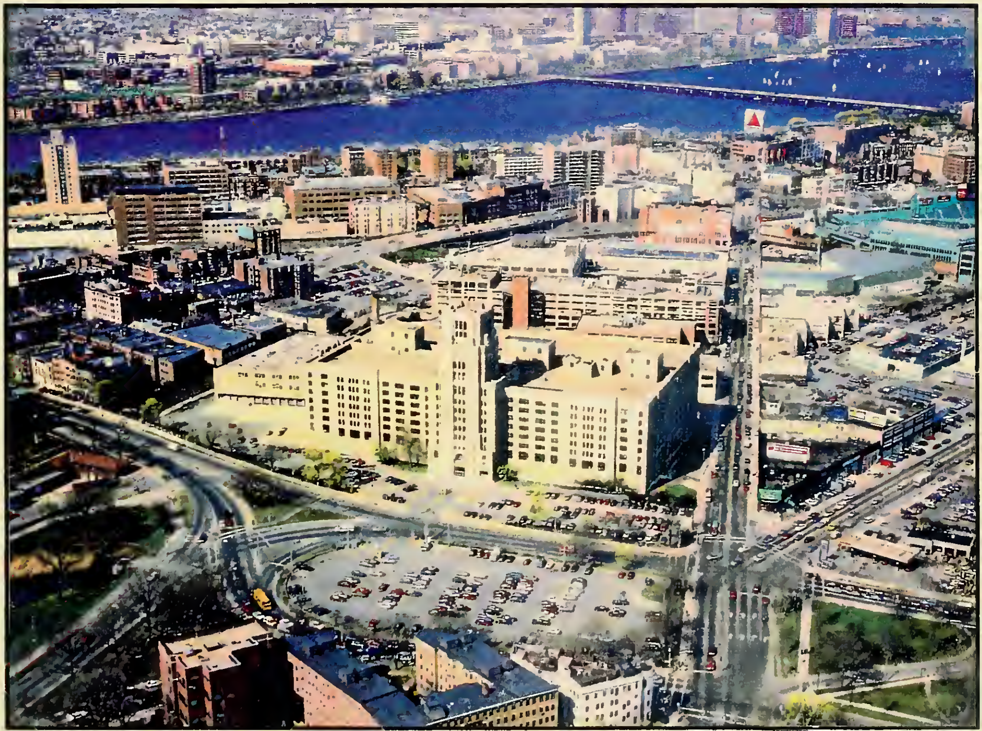
FENWAY PLAZA
Supplemental Project Impact Report / Notice of Project Change

A Redevelopment of the Sears Property
309 Park Drive/201 Brookline Avenue
In the Fenway, Boston, Massachusetts
E.O.E.A. #7643

May 2, 1994



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FENWAY PLAZA
A project of New England Development

SUPPLEMENTAL PROJECT IMPACT REPORT/ NOTICE OF PROJECT CHANGE

FENWAY PLAZA

EOEA 7643

prepared for

CRKF REALTY TRUST

May 2, 1994

prepared by

ARROWSTREET INC.

212 Elm Street

Somerville, MA 02144

and

ABEND ASSOCIATES

265 Winn Street, Suite 305

Burlington, MA 01803

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DEVELOPMENT

May 2, 1994

Secretary of Environmental Affairs
100 Cambridge Street - 20th Floor
Boston, MA 02202

Director of Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Re: Fenway Plaza, 309 Park Drive/201 Brookline Avenue, Boston, Massachusetts
EOEA No. 7643

Dear Secretary and Director:

CRKF Realty Trust (the "Trust") proposes to develop a retail project (the "Project") on the above property, an approximately 8.8 acre parcel which was the site of the former Sears Catalog Merchandise Distribution Center in the Fenway district of Boston (the "Site"). The Project will consist of the development of approximately 450,000 square feet of gross leasable area of new retail construction and the conversion of the main portion of the existing Sears building on the Site for parking by retail customers and monthly parkers.

The Site is the subject of a completed and accepted environmental review undertaken by the BRA under Article 31 of the Boston Zoning Code (the "Code"), the EOEA's MEPA unit and other agencies for a prior project known as Olmsted Plaza (EOEA No. 7643). As described in the Final Project Impact Report/Final Environmental Impact Report dated January 2, 1990 submitted by Olmsted Plaza Associates (hereinafter, the "FPIR/FEIR") the Olmsted Plaza project was to have consisted of 1,446,000 square feet of research and development, office, retail and related space. The main building on the Site was to have been converted for research and development uses with some office uses and with the ground floor and basement dedicated to retail use. The later warehouse additions to the

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main building were to have been demolished. In addition, two new office towers were to have been constructed, including a 13-story (151 foot) 316,000 square foot building along Brookline Avenue and a 9-story (100 foot) 223,000 square foot building along Park Drive. Finally, a new 92-foot high 1,155-car garage was to have been constructed on-site, with up to a 500-car garage to be constructed at a nearby off-site location, for a total supply of over 1,600 spaces, about 300 spaces less than the projected demand for that project.

The then-Secretary of EOEA issued a statement on February 20, 1990 that the FPIR/FEIR adequately and properly complied with M.G.L. c. 30 §§602-62H, the Massachusetts Environmental Policy Act ("MEPA").

Pursuant to 301 CMR 11.17(1) of the regulations implementing MEPA, the Trust hereby requests a ruling from the Secretary of EOEA that the changes described in this notice of project change ("NPC"), when compared to the Olmsted Plaza project, will not produce significantly increased environmental consequences and that, given the detailed analysis of the Project contained herein and its responsiveness to the BRA Scoping Determination referred to below, no further review, filing or approval is required for the Project pursuant to the provisions of said 301 CMR 11.17(1).

With respect to environmental review of the Project by the BRA, on December 21, 1989, the BRA issued a Preliminary Adequacy Determination accepting the Olmsted Plaza Draft Project Impact Report/Draft Environmental Impact Report dated September 1989 submitted by Olmsted Plaza Associates (hereinafter, the "DPIR/DEIR"). Although a Final Adequacy Determination on the Plaza FPIR/FEIR apparently was not issued, the BRA accepted the environmental impact of the Olmsted Plaza Project as described in the DPIR/DEIR and the FPIR/FEIR in connection with the BRA's Report and Decision on the Olmsted Plaza 121A Agreement dated October 31, 1991.

Article 31 of the Code does not apply to the Project given its location. However, because the Project proponent believed that it would be helpful for all concerned parties to have the BRA and the Boston Transportation Department ("BTD") review the differences between the impacts studied for the Olmsted Plaza Project and the expected impacts of the Project, the Trust submitted a letter to the BRA describing the environmental impacts of the Project on March 29, 1994. A copy of that letter is submitted as part of this report. In response to that letter, the BRA and the BTD issued a letter in the nature of a scoping determination dated April 13, 1994 which is also submitted as part of this report (the "BRA Scoping Determination").

Although there is no formal Notice of Project Change provision contained in Article 31 of the Code, Section 31.13 of the Code provides that the BRA shall coordinate the development review requirements of Article 31 with the MEPA review requirements and, to the extent feasible,

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the BRA may allow the Project proponent to submit a single set of documents to satisfy the requirements of both Article 31 and MEPA. Accordingly, the Project proponent is also submitting this document to the BRA in response to the BRA Scoping Determination as a Supplemental Project Impact Report and requests that the BRA determine that no further environmental review, filing or approval is required by the BRA for the Project.

The organization of this document (hereinafter referred to as "SPIR/NPC") follows the organization of the Olmsted Plaza DPIR/DEIR. We have intended that this SPIR/NPC be a comprehensive analysis of all of the environmental impacts of the Project as compared with those of the Olmsted Plaza project in order to satisfy both MEPA and BRA requirements. Accordingly, some sections are included in this SPIR/NPC that were not specifically required to be analyzed in the BRA Scoping Determination. Section 1.0 (Applicant Information), Section 2.0 (General Information), Section 3.0 (Transportation), Section 4.4 (Air Quality), Section 4.7 (Solid and Hazardous Waste), Section 4.8 (Noise), Section 5.0 (Urban Design), Section 6.0 (Historical Resources), Section 7.0 (Infrastructure) and Section 10.0 (Public Benefits) specifically address the development review requirements set forth in the BRA Scoping Determination.

Please note that copies of this document will be sent to the agencies and others identified in the enclosed distribution list. These are the agencies and other entities that received copies of the FPIR/FEIR.

Please do not hesitate to contact me if further information is required.

Very truly yours,

Joseph Fallon

FENWAY PLAZA

SUPPLEMENTAL PROJECT IMPACT REPORT/
NOTICE OF PROJECT CHANGE

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FENWAY PLAZA
SPIR/NPC

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- Electrical
  Johnson & Stover, Inc.
  1256 Park Street
  Stoughton, MA 02072

  Contact: James Stover
  6127/341-6060

- Mechanical/Plumbing/Fire Protection
  TMP Consulting Engineers Inc.
  52 Temple Place
  Boston, MA 02111

  Contact: Richard Noce
  Roger Wardwell
  617/357-6060

Architect/Urban Design and Historical

Arrowstreet Inc.
212 Elm Street
Somerville, MA 02144

Contact: Robert Slattery
George Tremblay
Robert Holt
617/623-5555

Air Quality

Beals and Thomas, Inc.
Two Westborough Business Park
200 Friberg Parkway
Westborough, MA 01581-3911

Contact: C. Scott Doty
508/366-0560

Solid and Hazardous Waste

GZA GeoEnvironmental, Inc.
320 Needham Street
Newton Upper Falls, MA 02164

Contact: Richard Simon
Marcus Walbaum
617/969-0050

Noise

Cavanaugh & Tocci Associates, Inc.
327 F Boston Post Road
Sudbury, MA 01776

Contact: Timothy J. Foulkes
508/443-7871

CIRCULATION LIST

CIRCULATION LIST

Fenway Plaza SPIR/NPC

Secretary of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202
Attention: MEPA Unit

Boston Redevelopment Authority (15)
One City Hall Plaza, 9th Floor
Boston, MA 02201

Department of Environmental Protection
One Winter Street
Boston, MA 02108

Executive Office of Communities & Development
State Clearinghouse
100 Cambridge Street, 9th Floor
Boston, MA 02202

Massachusetts Historical Commission
80 Boylston Street
Boston, MA 02116
Attn: Allen Johnson

Department of Environmental Management
225 Friend Street
Boston, MA 02114

Metropolitan Area Planning Council
110 Tremont Street
Boston, MA 02108

Massachusetts Highway Department
400 D Street
Boston, MA 02210

Massachusetts Water Resources Authority
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129

Executive Office of Transportation & Construction
10 Park Plaza, Room 3510
Boston, MA 02116-3969

Massachusetts Highway Department
10 Park Plaza
Boston, MA 02116-3969

Geoff Slater
Massachusetts Bay Transit Authority
10 Park Plaza, 5th Floor
Boston, MA 02116-3966

Boston Conservation Commission
The Environmental Department
Boston City Hall - Room 805
Boston, MA 02201

Thomas Keane, Councillor
Boston City Council
City Hall
Boston, MA 02201

Boston Parks and Recreation Department
1010 Massachusetts Avenue
Boston, MA 02118

Ed Burke
Boston Neighborhood Services
One City Hall Plaza, Room 708
Boston, MA 02201

Boston Transportation Department
City of Boston
1 City Hall Square, Room 721
Boston, MA 02201
Attn: Andrew McClurgh

Metropolitan District Commission
20 Somerset Street
Boston, MA 02108

Department of Environmental Protection
Metro Boston/Northeast Regional Office
5 Commonwealth Avenue
Woburn, MA 01801

Boston Water & Sewer Commission
425 Summer Street
Boston, MA 02210

Fenway Community Business Association
100 Peterborough Street
Boston, MA 02215
Attn: Marty Thornton

Fenway Community Development Corporation
75 Hemenway Street
Boston, MA 02115
Attn: Barbara Burnham

Audubon Circle Neighborhood Association
25 Aberdeen Street
Boston, MA 02215
Attn: Darryl Gately

Society for the Preservation of Audubon Circle
231 Park Drive #31
Boston, MA 02215

Friends of the Muddy River
c/o I.M. Callanan
22 Bowker Street
Brookline, MA 02146

MASCO
333 Longwood Avenue
Boston, MA 02115
Attn: Richard Shea

Boston Fenway Program
236 Huntington Avenue, 5th Floor
Boston, MA 02136

Kenmore Association
P.O. Box 644
Kenmore Station
Boston, MA 02215
Attn: Pam Beale

KAFNI
P.O. Box 127
Astor Station
Boston, MA 02123
Attn: Maura Zlody

Boston Preservation Alliance
45 School Street
Boston, MA 02108
Attn: Susan Park

Harvard Community Health Plan
10 Brookline Place West
Brookline, MA 02146

Dolores Boogdanian
452 Park Drive, No. 16
Boston, MA 02215

Barbara McKinley
452 Park Drive, #8
Boston, MA 02215

448 and 452 Park Drive Condominium Associations
448 Park Drive
Boston, MA 02215

Charles River Watershed Association
2391 Commonwealth Avenue
Auburndale, MA 02166

Stephen H. Kaiser, PhD
191 Hamilton Street
Cambridge, MA 02139

0.0 BOSTON REDEVELOPMENT AUTHORITY DOCUMENTATION

0.1 BOSTON REDEVELOPMENT AUTHORITY SCOPING DETERMINATION

APRIL 13, 1994

ston
development
thority

nas M. Menino, Mayor
ence J. Jones, Chairman
sa Lago, Director

RECEIVED
GOULSTON & STORRS
APR 14 1994
S.S.

RECEIVED
APR 14 1994
ARROWSTREET INC.

April 13, 1994

CRK Realty Trust
c/o Robert Slattery
Arrowstreet, Inc.
212 Elm Street
Somerville, MA 02144

Dear Mr. Slattery:

Re: Fenway Plaza – 309 Park Drive/201 Brookline, Boston

Enclosed is the Scoping Determination for the Fenway Plaza Project ("the Proposed Project") in response to your letter of submission of a Project Notification Form ("PNF"), pursuant to a voluntary submission of Article 31 of the Boston Zoning Code.

As envisioned by Article 31-13 of the Code, it is anticipated that the Scoping Determination enclosed will be coincident with the Executive Office of Environment Affairs MEPA unit for a contemplated Notice of Project Change.

Additional information may be required during the course of BRA review of the Proposed Project. Should you have questions regarding the Scoping Determination or other-wise in connection with review of the Proposed Project please call.

Sincerely,

Brian De Lorey

Brian De Lorey
Assistant Director for
Economic Development

A5/35

One City Hall Square
Boston, MA 02201-1007
Telephone (617) 722-4300
Fax (617) 367-5916

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BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

FENWAY PLAZA

SUBMISSION REQUIREMENTS FOR DRAFT SUPPLEMENTAL PROJECT IMPACT REPORT (DSPIR)

PROPOSED PROJECT: Fenway Plaza

PROJECT LOCATION: 309 Park Drive/201 Brookline Avenue, Boston, MA

APPLICANT: CRKF Realty Transit

SUBMISSION DATE: March 29, 1994

On November 30, 1989, Olmsted Plaza Associates, a Massachusetts general partnership, obtained the approval of the Boston Redevelopment Authority ("Authority") of a Development Plan for Planned Development Area (PDA/DIP) No. 36 (the "PDA/DIP Plan") for the Research Center at Olmsted Plaza, a proposed mixed-use development of approximately 1,836,000 square feet on the site of the Sears Building located in the Fenway, Audubon Circle, and Kenmore neighborhoods. The PDA/DIP Plan subsequently was approved by the Boston Zoning Commission.

On August 21, 1991, Olmsted Plaza Associates obtained the approval of the Boston Redevelopment Authority for technical amendments to the Development Plan and Development Impact Project Plan (the "Development Plan") to reflect a new phasing scheme necessary for the financing of the project to proceed.

On October 18, 1991, Olmsted Plaza Associates filed an Application for authorization and approval of the Olmsted Plaza project under Chapter 121A of the General Laws of the Commonwealth of Massachusetts ("Chapter 121A") and Chapter 652 of the Acts of 1960 ("Chapter 652"), as amended. The Project Area which was to be subject to Chapter 121A included the site of the Planned Development Area ("PDA") which was the subject of the previously approved PDA/DIP Plan and the property located at 70 Van Ness Street, with respect to which the Authority previously recommended the granting of variances and conditional use permits by the Board of Appeal for the erection of a parking garage which would serve the Olmsted Plaza project. On October 31, 1991, the Authority approved the Chapter 121A Application.

As part of the review of the Olmsted Plaza submission, the project underwent extensive project and environmental reviews by the Boston Redevelopment Authority.

In voluntary compliance with the procedures of Article 31 of the Boston Zoning Code, Olmsted Plaza Associates submitted a Draft Project Impact Report ("DPIR") on September 29, 1989, and on December 21, 1989, the Authority issued a Preliminary Adequacy Determination accepting the DPIR. On January 2, 1990, Olmsted Plaza Associates submitted a Final Project Impact Report ("FPIR"); however, a Final Adequacy Determination apparently was not issued. In addition, the Olmsted Plaza project underwent comprehensive environmental review pursuant to the Massachusetts Environmental Policy Act ("MEPA") (EOEA No. 7643), including the filings of a Draft Environmental Impact Report and a Final Environmental Impact Report, jointly with the DPIR and FPIR respectively. The Authority's Report and Decision on the Olmsted Plaza 121A Agreement, dated October 31, 1991, found and determined that "(p)ursuant to the provisions of Section 61 of [MEPA]... the [Olmsted Plaza] Project will not result in significant damage to or impairment of the environment and further... that all practicable and feasible means and measures have been taken, or will be utilized, to avoid or minimize damage to the environment."

As described in the Final Project Impact Report/Final Environmental Impact Report dated January 2, 1990, the Olmsted Plaza project was to have consisted of 1,446,000 square feet of research and development, office, retail, and related space. The main building on the Site (the Sears Building) was to have been converted for primarily research and development uses with some office uses and with the ground floor and basement dedicated to retail use. The later warehouse additions to the main building were to have been demolished. In addition, two new office towers were to have been constructed, including a 13-story (151 foot), 316,000 square foot building along Brookline Avenue and a 9-story (100 foot), 223,000 square foot building along Park Drive. Finally, a new, 92-foot high, 1,155-car garage was to be constructed on-site, with up to a 500-car garage to be constructed at a nearby off-site location, for a total of over 1,600 cars.

Subsequently, due to financial and leasing problems, the Olmsted Plaza project was not carried forward.

On March 29, 1994, CRKF Realty Trust (the "Trust"), successor developers of the project site, submitted a letter notice of project change describing a proposed Fenway Plaza project (the "Project") and its potential environmental impacts and comparing the environmental impacts of the Proposed Project with those of the former Olmsted Plaza project.

Although the Proposed Project is located beyond the boundaries of the area subject to Article 31 of the Boston Zoning Code, the Applicant has voluntarily consented to follow the procedures of the Article 31 process in order to eliminate regulatory duplication and to consolidate the Proposed Project's review into a unified process and one set of documents. Further, in accordance with Section 13 of Article 31, the Authority's development review requirements will incorporate any environmental requirements issued by the Executive Office of Environmental Affairs in accordance with MEPA.

Article 31, Development Review Requirements, sets out a comprehensive procedure for project review and requires the Authority to review the design, transportation, environmental, historic, and infrastructure impacts of proposed projects. Article 31 requires the submission of a satisfactory Final Project Impact Report prior to issuance of a building permit. The Boston Redevelopment Authority is issuing the Scoping Determination pursuant to Section 5 of Article 31. The Scoping Determination requests information required by the Authority in the performance of its review of the Proposed Project and is related primarily to those matters where the Authority believes a supplemental environmental review would be appropriate due to the differences between the impacts studied for the former Olmsted Plaza project and the anticipated impacts of the Proposed Project.

I. FENWAY PLAZA PROJECT DESCRIPTION

The Proposed Project consists of the development of approximately 450,000 square feet of gross leasable area of retail and related space on the site. This retail project will serve a fairly limited geographical area, given the numerous shopping centers located within a relatively short driving distance from the Site. Accordingly, the Project will be especially attractive to residents of the neighborhoods surrounding the Site. As an example of this aspect of the Project, it is presently anticipated that among the tenants will be a full-service supermarket for the benefit of neighborhood residents. The original main building presently on site, the former Sears Catalog Merchandise Distribution Center, will be converted into an open parking structure for tenant and commercial use. This parking structure will contain approximately 1,450 parking spaces devoted exclusively to the customers of the retail tenants in the building and approximately 1,030 parking spaces which will be rented on a monthly basis to one or more users. The approximately 300,000 square feet of warehouse buildings located to the rear of the main building will be wholly or partially demolished in order to make room for the new retail development. The retail development will be a three story structure with a partial basement that will surround the easterly and northerly sides of the main Sears building. Of the total of 700 surface parking spaces currently in existence, a total of 550 surface parking spaces will be eliminated and up to 150 parking spaces will remain along the Park Drive frontage of development in order to service the tenants. Among these eliminated surface parking spaces will be 268 parking spaces located on the so-called "missing link" Emerald Necklace parcel located across the site from Park Drive, which will be donated to the City for restoration by the City as park land.

II. DEVELOPMENT REVIEW REQUIREMENTS-ARTICLE 31

In addition to full-size scale drawings, 15 copies of a bound booklet containing all submission materials reduced to size 8½"x11", except where otherwise specified, are required. The booklet should be printed on both sides of the page. In addition, an adequate number of copies must also be available for community review. Included in the submission materials should be a copy of this Scoping Determination.

A. GENERAL INFORMATION

1. Applicant Information

a. Development Team

(1) Names

(a) Developer (including description of development entity and type of corporation)

(b) Attorney

(c) Project consultants

(2) Business address and telephone number for each

(3) Designated contact for each

b. Legal Information

(1) Legal judgments or actions pending concerning the Proposed Project

(2) History of tax arrears on property owned in Boston by the Applicant

(3) Evidence of site control over the project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the proponent's right or ability to accomplish the Proposed Project and the nature of the agreements for securing parcels not owned by the Applicant.

(4) Nature and extent of any and all public easements into, through, or surrounding the site.

2. Financial Information (See Appendix 1 for required financial information, which may be submitted under separate cover)

A Development Pro Forma must be provided for the Proposed Project.

a. Full disclosure of financing references

b. Development Pro Forma

3. Project Area

   a. An area map identifying the location of the Proposed Project

   b. Description of metes and bounds of project area or certified survey of project area

4. Public Benefits

   a. Existing and estimated future annual taxes

   b. Anticipated employment levels including the following:

      (1) Estimated number of construction jobs
      (2) Estimated number of permanent jobs

   c. Other public benefits, if any, to be provided

5. Regulatory Controls and Permits

   a. Existing zoning requirements, zoning computation forms, and any anticipated requests for zoning relief should be explained.

   b. Anticipated permits required from other local, state, and federal entities with a proposed application schedule should be noted.

   c. A statement on the applicability of the Massachusetts Environmental Policy Act (MEPA) should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BRA, including, but not limited to, copies of the Environmental Notification Form and the proposed schedule for coordination with BRA procedure.

6. Community Groups

   a. Names and addresses of project area owners, abutters, and also any community or business groups which, in the opinion of the applicant, may be substantially interested in or affected by the Proposed Project.

B. TRANSPORTATION COMPONENT

A Transportation Access Plan shall be prepared as defined by the Scope of Services outlined in Appendix 2.

C. ENVIRONMENTAL PROTECTION COMPONENT

1. Air Quality

A future air quality analysis (carbon monoxide) shall be required for any intersection where level of service is expected to deteriorate to D and the Proposed Project causes a 10 percent increase in traffic or where the level of service is E or F and the Proposed Project contributes to a reduction of LOS. The methodology and parameters of the traffic-related air quality analysis shall be approved in advance by the BRA. Mitigation measures to eliminate or avoid any violation of air quality standards shall be described.

In addition, an indirect source air quality analysis of the operation of the parking garage shall be prepared to determine potential air quality impacts on nearby sensitive receptors and compliance with air quality standards. Garage emissions should be estimated using appropriate U.S. EPA guidance (Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9 (Revised): Evaluating Indirect Sources, EPA-450/4-78-001). The EPA SCREEN2 model may be used to calculate maximum CO impacts from the garage at the various sensitive receptors.

In addition, since the proposed Fenway Plaza project will generate in excess of 6,000 vehicle trips per day, an air quality mesoscale analysis for ozone in accordance with Massachusetts DEP/DAQC "Guidelines for Performing Mesoscale Analysis of Indirect Sources" (May 1991), shall be required to asses the total hydrocarbon emissions associated with all project-related vehicle trips and to demonstrate that the hydrocarbon emissions associated with the preferred alternative are less than those from the no-build case in both the short- and long-term. If hydrocarbon emissions from the preferred alternative are greater than the no-build case, reasonable and feasible hydrocarbon reduction/mitigation measures must be included. Consult the "Guidelines for Performing Mesoscale Analysis of Indirect Sources" (available at the MEPA office) and DEP/DAQC to determine the appropriate study area.

2. Noise

An analysis of the anticipated long-term noise impacts from project-generated traffic, the operation of the garage, and from the project's building mechanical systems shall be required. In addition, potential noise generated by delivery and other vehicles at the project's loading docks also shall be evaluated. A schedule of truck delivery times shall be provided. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors shall be described.

3. Hazardous Wastes

The DSPIR shall include a copy of the additional site evaluation performed by GZA Geo Environmental, Inc., and copies of appropriate documentation respecting the classification of the site by the Massachusetts Department of Environmental Protection. The DSPIR also shall describe the proposed remediation plan for the site and the disposal of hazardous materials found on the site.

D. URBAN DESIGN COMPONENT

1. Issues

a. The ground floor space layout and the character of ground floor spaces should enhance the convenience and attractiveness of pedestrian circulation through the project and around it. The pedestrian route from the Fenway "T" Station to the West Fens residential neighborhood in particular would benefit from the provision of a weather-protected passageway with adjacent retail uses.

b. The Park Drive frontage is an important element in the public open space system of the Fens and Muddy River. Its treatment should therefore emphasize its affinity towards the Emerald Necklace by minimizing the visual impact of parked and queued cars, ticket booths, and gates, and instead maximizing the use of plant materials, pedestrian paving, pedestrian-scale lighting and other landscape elements that are similar to those in the park landscape.

c. The character as well as the bricks and mortar of the landmark Sears Building is important to preserve. Three aspects of the facade treatment need special attention:

- The openings for automobile entrances and exits should be made with sensitivity to the scale of other facade openings and acknowledgement of the unanticipated use;
- the design and size of the signage on and near the Park Drive facade should defer to the character of the landmark; and
- It is necessary to avoid the unappealing appearance of unglazed window openings; the openings should be filled with grille-work or other materials that suggest a surface rather than a void.

d. The scale and character of the Brookline Avenue facade and sidewalk should contribute to the general upgrading of the street and enhance its vitality. Particular attention should be paid to the interface between the proposed structure and the existing landmark. Patterns of circulation at the interface of the two structures should be fully described.

2. Urban Design Submission Materials

In order to determine if the Proposed Project (a) is architecturally compatible with surrounding structures, (b) exhibits an architectural concept that enhances the urban design features off the subdistrict in which it is located, and (c) augments the quality of the pedestrian environment, the following schematic design items must be submitted:

a. Written description of program elements and space allocation for each element.

b. Plan for the surrounding area and district as well as sections at an appropriate scale (1" = 100' or larger) showing relationships of the Proposed Project to the surrounding areas and districts:

- massing
- building height
- scaling elements
- public spaces
- pedestrian and vehicular circulation and entry points

c. Black and white, 8" x 10" photographs of the site and neighborhood.

d. Sketches and diagrams, and photographs where relevant, to clarify design issues and massing options.

e. Eye-level perspective(s), in a reproducible line drawings format, showing the proposal in the context of the surrounding area.

f. Aerial views of the project in the context of the surrounding area.

g. Site sections at 1" = 32' or larger showing relationships to adjacent buildings and spaces.

h. Site plan at an appropriate scale (1" = 32' or larger) showing:

- general relationships of proposed and existing adjacent buildings and open space.

- open spaces defined by buildings on adjacent parcels and across streets.

- general location of pedestrianways, driveways, parking, service areas, streets, and major landscape features.

- pedestrian, handicapped, vehicular and service access and flow through the parcel, and to and from adjacent areas.

- survey information including, but not limited to, existing land and building elevations, benchmarks, and utilities.

- phasing possibilities.

- construction limits.

i. Massing models at 1" - 40' for use in the BRA downtown base model, and study models at 1" = 16' showing facade design.

j. Drawings at an appropriate scale (1" = 16' or larger) describing architectural massing, facade design and proposed materials including:

  - site improvement plans.
  - elevations in the context of the surrounding area.
  - sections showing organization of functions and spaces.
  - preliminary floor plans showing ground floor, typical upper floor(s), and roof.

k. Proposed schedule for submittal of design development materials.

Submission materials for Design Development and Contract Documents submission are described in Appendix 3.

E. HISTORIC RESOURCES COMPONENT

The Sears Building was designated a Boston Landmark in October, 1989, by the Boston Landmarks Commission (BLC) under M.G.L. Chapter 772 of the Acts of 1975, as amended. Due to the Landmark status of the property, the proposed Fenway Plaza Project will be reviewed by the BLC under the process outlined in the enabling legislation. The Sears Building is also listed on the National Register of Historic Places.

Specifically, the Landmark designation applies to all four elevations of the main Sears block, constructed between 1928-30. The general approach for design review presented in the BLC's Study Report for the Sears Building under Section 9.0 - "Specific Standards and Criteria" calls for no changes to those elements that are essential to the style and character of the building. Specific guidelines are available in the aforementioned document.

The remainder of the site is designated as a protection area. The general intent of the protection area designation "is to ensure that the Sears Block remains as a prominent, free-standing structure on the parcel. New construction should not overpower the structure, diminish its stature or significantly alter its appearance." The protection area guidelines cover demolition of any structure in the protection area, land coverage, building height and massing, landscaping and topographical changes.

The BLC also has jurisdiction over any proposed changes to the Sears parking lot parcel that is part of the Olmsted Parks/Emerald Necklace Landmark Designation. The parkways, including the Fenway and the Riverway, are also included in this designation as a protection area, and thus are subject to BLC review.

The Design Review Committee of the BLC has had preliminary design review meetings with the project proponent. Several major issues have been raised and should be addressed in any future submissions by the project proponent. These issues include: window treatments; new masonry openings; signage; the impacts of vehicular and pedestrian access on the historic resource; the design and massing of new construction on the site; and the treatment of the interim park on the Emerald Necklace parcel.

F. INFRASTRUCTURE SYSTEMS COMPONENT

An infrastructure impact analysis must be performed. The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The applicant's submission must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the proposed project for additional systems facilities.

In the case of the Fenway Plaza project, particular consideration should be given to system capacity in handling peak loading/demand conditions for chilled water usage, any discontinued, upgraded, or new connections, and comparison with prior demand conditions for existing and previous Project (Olmsted Plaza) system usage. The outline information presented in the transmittal of March 29, 1994 is an excellent start for expansion to a DSPIR.

The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described.

APPENDIX 1

REQUIRED FINANCIAL INFORMATION

REQUIRED FINANCIAL INFORMATION
FENWAY PLAZA

DEVELOPMENT PRO FORMA includes all the information normally found in a development pro forma, by phase. This includes, but is not limited to:

- Land costs, per land square foot and total, by parcel, including any incremental disposition cost attributed to the project.
- Attribution of acquisition expense over project components (per FAR square foot, retail, office, parking, etc.).
- All hard costs on a per-unit and total basis (disaggregated into base building, tenant improvement work, site work, furniture, fixtures and equipment, FF&E, etc.).
- All soft costs on a per-unit and total basis (disaggregated into individual line items such as architectural, engineering, legal, accounting, and developer's fees, and any other professional fees, insurance, permits, etc.).
- All contingencies, on a per-unit and total basis, by phase (specify whether contingency is on hard costs, soft cost, or total cost).
- All assumptions regarding financing terms on acquisition, pre-development, construction and permanent loans, by phase (including financing fees, interest rates, drawdown assumptions, terms, participations, amortization).
- Any other project-related expenses not within any of the above categories.
- Calculation of Total Development Cost (TDC) by component, including total and per unit breakdown (e.g., per square foot office, retail, parking, etc.).
- Sources of debt and equity for total project costs.
- Projected financing sources, including bond-issuing agencies such as HEFA or MIFA, banks, institutional investors, private, corporate or government donors (an analysis of the costs versus benefits of the financing options, including interest costs and loan terms, as well as a comparison between available sources, should be included).

APPENDIX 2

TRANSPORTATION ACCESS PLAN
SCOPE OF SERVICES

FENWAY PLAZA
ACCESS PLAN SCOPE

Scope of Work

The developer must evaluate the transportation impacts associated with the proposed project. The results of this evaluation will be documented in an Access Plan prepared for submission to the Boston Transportation Department (BTD). The report will include the following.

- A definition of existing traffic, transit, and parking conditions.
- An evaluation of the project's long-term impacts on traffic, transit and pedestrian activities as well as on parking demand.
- An evaluation of the project's short-term traffic impacts related to construction activity.
- Identification of appropriate measures to mitigate project impacts, including long-term project impact monitoring.

In the preparation of the Access Plan, use should be made of all available existing studies and data.

Study Area

The following intersections will be studied:

a. Park Drive at Beacon Street
b. Park Drive at Riverway
c. Fenway at Brookline Avenue
d. Brookline Avenue/Park Drive/Boylston Street
e. Brookline Avenue at Longwood Avenue
f. Riverway at Longwood Avenue
g. Kenmore Square
h. Huntington Avenue/Louis Prang Avenue/Ruggles Street
i. Brookline Avenue at Fullerton Street
j. Riverway at Brookline Avenue
k. Evansway/Fenway/Louis Prang Avenue
l. Riverway at Fenway
m. Park Drive at Site Entrance

Definition of Tasks

Task 1. Description of Existing Transportation Conditions

The Existing Conditions component will present data on the various transportation systems within the study area, and will provide measures of levels of service, available capacity and other analysis as appropriate to identify any current deficiencies in those systems.

1.1 Traffic. Available traffic volume counts will be supplemented with new counts, as necessary. Based on data gathered from all sources, a preliminary base traffic volume network will be developed to represent existing morning, evening and weekend peak hour conditions.

Vehicle trip generation characteristics of existing land uses at the project site will be determined by survey.

Capacity analysis will be performed to determine level of service at all study area intersections.

1.2 Parking. Public parking supply within walking distance of the project site will be defined. The parking inventory will distinguish between on-street (metered and unregulated) and off-street (commercial) spaces. Availability of public spaces will be determined by reference to published sources such as the BTD's 1987 Downtown Parking Inventory Study, supplemented and updated as necessary with survey data.

The existing parking plan for the site will be presented. The inventory of existing on-site parking spaces will include: number of spaces; occupation of spaces by facility, user type, hour of peak occupancy, and turnover rate; rates charged for use; location of any high-occupancy vehicle spaces.

1.3 Transit. The area's private bus carrier services and Massachusetts Bay Transportation Authority (MBTA) services will be described.

1.4 Pedestrians. Pedestrian conditions on sidewalks and intersections adjacent to the site will be described. Describe major pedestrian corridors to and pathways within the site. Estimate volumes of pedestrians using same. Describe conditions of corridors, including any deficiencies or barriers.

Pedestrian counts will be taken at the following crossings and sidewalk locations:

a. Boylston Street/Brookline Avenue/Park Drive (all crossings)
b. Fullerton Street at Brookline Avenue
c. Brookline Avenue at Riverway (all crossings)

Task 2. Evaluation of Long-Term Transportation Impacts

The traffic impacts of the proposed development will be analyzed in detail. Expected long-term transportation conditions in the study area will be estimated and evaluated. Impacts of traffic generated by the project will be analyzed in detail and presented in comparison with existing conditions and a "No-Build" scenario, which would represent the situation at the horizon year if the project site were to remain in its current use.

2.1 Trip Generation. The proposed uses of the site will be evaluated to determine the project's person-trip generation characteristics, which will be translated into vehicle trips by use of modal split and vehicle occupancy assumptions consistent with those used for other previously submitted Access Plans, or otherwise as approved by the BTD. Trip origins will be assigned to appropriate locations on the site.

2.2 Trip Distribution. As with trip generation, trip distribution should be performed specifically for the project site. Estimations should be made of the probable origin of work and non-work trips to the site, on the basis of potential employee pool and the marketing characteristics of the retail space. Trip distribution is most appropriately described in terms of corridor of origin, e.g., Northwest, Southeast, etc.

2.3 Conditions to be Analyzed. In addition to existing conditions, the following future conditions will be analyzed at the Study Intersections:

a. No-Build (with only background projects anticipated to be completed included).

b. Full-Build (with the addition of project-related impacts).

The Build scenario must show the AM, PM and weekend peak hour levels of service at the Study Intersections under each of the roadway alternatives examined.

2.4 Background Development Projects. Any previously approved building construction projects to be included in the No-Build evaluation will be reviewed with Boston Redevelopment Authority and BTD staff prior to the analysis.

2.5 Evaluation of Transportation Impacts. New trips expected to be attracted to the proposed development will be added to demands carried by the existing roadway system plus new trips from background projects. Morning, evening and weekend peak hour and daily increases will be developed and analyzed for all travel modes.

2.5.1 Traffic Impacts.. Volume-to-capacity ratio (v/c), available reserve capacity (ARC), level of service (LOS) and delay calculations at, and queue lengths between, the study intersections.

2.5.2 Site Circulation. A detailed site plan will be provided, showing proposed location of all vehicular and pedestrian access, drop-off or valet service locations, taxi waiting areas, delivery points, and internal pedestrian circulation.

2.5.3 Transit. The usage of public transportation will be described, and the impact of the project on transit services.

2.5.4 Pedestrian Impacts. Pedestrian volumes generated by the project will be presented. Future volumes will be projected for the locations and crossings identified in Section 1.4 will be projected. Pedestrian conditions will be analyzed and mitigation of substandard situations will be proposed. Pedestrian paths and corridors across and through the project site will be identified on a site plan.

2.5.5 Trucks and Service Vehicles. Truck and service vehicle traffic to the site will be estimated. Access and egress for emergency vehicles will also be evaluated.

2.6 Parking Impacts. Demand for parking generated by the proposed project will be calculated. Parking supply will be identified, for employees and patrons. Parking operations will be described in detail.

2.6.1 Parking demand generated by project by use, both long-term and short-term. On the basis of the traffic volumes projected in Section 2.1 above, and using appropriate turnover rates, estimate project-generated parking demand in horizon year. Indicate user type (employee, visitor, retail patron, patient, etc.).

2.6.2 Parking Supply. Identify number and location of spaces. Displacement of existing on-site spaces will be noted.

2.6.3 Proposed Management Plan for Parking Facilities. Rates for both public (short-term) and private (commuter) spaces will be given. Method of directing patrons to parking, lease arrangements with parking operators, parking pricing, and valet operations will be detailed.

2.6.4 A plan will be provided of all parking facilities, including layout, access, and size of spaces.

Task 3. Evaluation of Short-Term Impacts (Construction Period)

The transportation assessment will evaluate the impacts of the project during the construction period, including: mode of arrival for construction workers; parking provisions for construction workers and construction materials deliveries; frequency, times and routes of truck movements and construction materials deliveries; temporary storage of construction equipment and materials; the need for full or partial street closures of street occupancy during construction will be defined.

Task 4. Development of Mitigation Measures

Programs or strategies to reduce the transportation impacts will be developed and may include the following:

- Measures to minimize vehicle-trip generation.
- Roadway/traffic operation improvements.
- Transit Improvements.
- Parking management improvements.
- Pedestrian Improvements.
- Long-term project impact monitoring.

APPENDIX 3

SUBMISSION REQUIREMENTS FOR DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS SUBMISSIONS

Phase II Submission: Design Development

1. Written description of the Proposed Project.

2. Site sections.

3. Site plan showing:

    a. Relationship of the proposed building and open space and existing adjacent buildings, open spaces, streets, and buildings and open spaces across streets.

    b. Proposed site improvements and amenities including paving, landscaping, and street furniture.

    c. Building and site dimensions, including setbacks and other dimensions subject to zoning requirements.

4. Dimensional drawings at an appropriate scale (e.g., 1" = 8') developed from approved schematic design drawings which reflect the impact of proposed structural and mechanical systems on the appearance of exterior facades, interior public spaces, and roofscape including:

    a. Building plans

    b. Preliminary structural drawings

    c. Preliminary mechanical drawings

    d. Sections

    e. Elevations showing the Proposed Project in the context of the surrounding area as required by the Authority to illustrate relationships or character, scale and materials.

5. Large-scale (e.g., 3/4" = 1'-10") typical exterior wall sections, elevations and details sufficient to describe specific architectural components and methods of their assembly.

6. Outline specifications of all materials for site improvements, exterior facades, roofscape, and interior public spaces.

7. Eye-level perspective drawings showing the Proposed Project in the context of the surrounding area.

8. Samples of all proposed exterior materials.

9. Complete photo documentation (35 mm color slides) of above components including major changes from initial submission to the Proposed Project approval.

Phase III Submission: Contract Documents

1. Final written description of the Proposed Project.

2. A site plan showing all site development and landscape details for lighting, paving, planting, street furniture, utilities, grading, drainage, access, service, and parking.

3. Complete architectural and engineering drawings and specifications.

4. Full-size assemblies (at the project site) of exterior materials and details of construction.

5. Eye-level perspective drawings or presentation model that accurately represents the Proposed Project, and a rendered site plan showing all adjacent existing and proposed structures, streets and site improvements.

6. Site and building plan at 1" - 100' for Authority's use in updating its 1" = 100" photogrammetric map sheets.

Phase IV Submission: Construction Inspection

1. All contract addenda, proposed change orders, and other modifications and revisions of approved contract documents which affect site improvements, exterior facades, roofscape, and interior public spaces shall be submitted to the BRA prior to taking effect.

2. Shop drawings of architectural components which differ from or were not fully described in contract documents.

0.2 SUBMITTAL TO BOSTON REDEVELOPMENT AUTHORITY MARCH 29, 1994

arrowstreet inc.

Architects
Planners
Urban Designers

March 29, 1994

BY HAND

Marisa Lago, Director
Boston Redevelopment Authority
One City Hall Square
Boston, Massachusetts 02201

Re: Fenway Plaza
309 Park Drive / 201 Brookline Avenue, Boston, Massachusetts

Dear Ms. Lago:

On behalf of its client, CRKF Realty Trust (the "Trust"), Arrowstreet, Inc. is pleased to submit this letter describing the proposed Fenway Plaza project (the "Project") and its potential environmental impacts. The Project will be developed on the above property, an approximately 8.8 acre parcel which was the site of the former Sears Catalog Merchandise Distribution Center in the Fenway district of Boston (the "Site"). The area of the Site is shown on the plan attached hereto as Exhibit A.

As more fully described below, the Site is the subject of an existing, outstanding environmental review undertaken by the BRA under Article 31 of the Boston Zoning Code (the "Code"), the Executive Office of Environmental Affairs' MEPA Unit and other agencies for a prior project known as Olmsted Plaza, which consisted of a development of approximately 1.5 million square feet of building area devoted to institutional research and development, office and retail use and in addition, over 1600 parking spaces in two separate garages. This letter will compare the environmental impacts of the proposed Project with those of Olmsted Plaza.

Given the extensive environmental reviews of the Olmsted Plaza project by MEPA and the BRA and the fact that the current Project contemplated for the Site is a substantially smaller project with projected environmental impacts of generally far lesser magnitude, the

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617.623.5555

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Project is to be submitted for MEPA review under the Notice of Project change procedures. In connection with that process and even though Article 31 of the Code does not apply to the Project given its location, we believe it would be helpful for all concerned parties to have the BRA and the BTD review the differences between the impacts studied for the Olmsted Plaza project and the expected impacts of the Project. Based upon this review we request that you issue a response in the nature of a scoping determination for those matters related to the differences where the City believes supplemental environmental review would be appropriate. We request that the response be forwarded to the undersigned for submission by the Project proponent to MEPA in connection with the contemplated Notice of Project Change. In this way, costly and unnecessary duplicative environmental reviews can be avoided while preserving the necessary focus on differences between the two projects. Your response will further the spirit of cooperation between BRA and MEPA envisioned by Article 31-13 of the Code.

Moreover, the Trust intends to seek approval by the BRA of an Agreement pursuant to M.G.L. Chapter 121A and Chapter 652 of the Acts of 1960, as a result of which the BRA shall have exclusive jurisdiction to grant any deviations from the Code which may be required for the Project to proceed. While the Chapter 121A process does not incorporate a process like Article 31, the proponents of the Project wish to solicit the BRA's response to this letter as a guide to the preparation of the Chapter 121A Application and its consideration by the BRA.

Summary of the Project. The Project consists of the development of approximately 450,000 square feet of gross leasable area of retail and related space on the Site. This retail project will serve a fairly limited geographical area, given the numerous shopping centers located within a relatively short driving distance from the Site. Accordingly, the Project will be especially attractive to residents of the neighborhoods surrounding the Site. As an example of this aspect of the Project, it is presently anticipated that among the tenants will be a full-service supermarket for the benefit of neighborhood residents. The original main building presently on Site, the former Sears Catalog Merchandise Distribution Center, will be converted into an open parking structure for tenant and commercial use. This parking structure will contain approximately 1,450 parking spaces devoted exclusively to the customers of the retail tenants in the building and approximately 1,030 parking spaces which will be rented on a monthly basis to one or more users. The approximately 300,000 square feet of warehouse buildings located to the rear of the main building will be wholly or partially demolished in order to make room for the new retail development. The retail development will be a three story structure with a partial basement that will surround the easterly and northerly sides of the main Sears building. Of the total of 700 surface parking spaces currently in existence, a total of 550 surface parking spaces will be eliminated and up to 150 parking spaces will remain along the Park Drive frontage of development in order to service the tenants. Among these eliminated surface parking spaces will be 268 parking spaces located on the so-called "missing link" Emerald Necklace parcel located across the Site from Park Drive which will be donated to the City for restoration by the City as park land.

The Project will provide numerous benefits to the surrounding neighborhoods and to the City at large. In terms of use, the proposed retail use will reestablish the historic uses of the Site and will be an attractive shopping center for neighborhood residents and other residents of the City. The main Sears building, an important structure which is a Boston, State and National landmark and which is presently deteriorating, will be restored to active use in accordance with the requirements of all applicable law. As noted above, the "missing link" parcel will be conveyed directly to the City for restoration by the City of this parcel as parkland. A public benefits package will include housing and jobs linkage funds. It is anticipated that approximately 1200 construction jobs and 1000 permanent jobs will be created.

A preliminary Site Plan showing the Project is attached as Exhibit B. A list of the members of the consultants on the Project is attached as Exhibit C.

Olmsted Plaza Project. As indicated above, the Olmsted Plaza project underwent extensive environmental review pursuant to Article 31 and the Massachusetts Environmental Protection Act ("MEPA") review procedures (EOEA No. 7643). As described in the Final Project Impact Report / Final Environmental Impact Report dated January 2, 1990 submitted by Olmsted Plaza Associates (hereinafter, the "FPIR") the Olmsted Plaza project was to have consisted of 1,446,000 square feet of research and development, office, retail and related space. The main building on the Site was to have been converted for primarily research and development uses with some office uses and with the ground floor and basement dedicated to retail use. The later warehouse additions to the main building were to have been demolished. In addition, two new office towers were to have been constructed, including a 13-story (151 foot), 316,000 square foot building along Brookline Avenue and a 9-story (100 foot), 223,000 square foot building along Park Drive. Finally, a new, 92-foot high 1155-car garage was to be constructed on-Site, with up to a 500-car garage to be constructed at a nearby off-Site location, for a total of over 1600 cars.

On December 21, 1989, the BRA issued a Preliminary Adequacy Determination accepting the Olmsted Plaza Draft Project Impact Report / Draft Environmental Impact Report dated September, 1989 submitted by Olmsted Plaza Associates (hereinafter, the "DPIR"). Although a Final Adequacy Determination on the Olmsted Plaza FPIR apparently was not issued, the BRA's Report and Decision on the Olmsted Plaza 121A Agreement dated October 31, 1991, provided as follows:

> "Pursuant to the provisions of Section 61 of [MEPA], the Authority hereby finds and determines that the [Olmsted Plaza] Project will not result in significant damage to or impairment of the environment and further finds that all practicable and feasible means and measures have been taken, or will be utilized, to avoid or minimize damage to the environment. As a result of the investigations and report of the Authority's staff in connection with the Development Review Process for the Project undertaken in accordance with Article 31 . . . the Authority hereby determines that [relevant sections of the DPIR and the FPIR] describe the impacts on the environment of such Project and hereby incorporates such sections by reference as the Authority's findings describing such impacts."

To assist in your review of this letter and the issuance of a response in the nature of a scoping determination, this letter addresses in summary form the environmental impacts of the Project and briefly compares them to the impacts of the Olmsted Plaza project that were accepted by the BRA. Specifically, this letter addresses the following areas that were analyzed in the Olmsted Plaza Article 31 / MEPA reports: (i) transportation issues including traffic impacts, public transportation and parking; (ii) environmental issues including wind, shadows, daylight, air quality, wetlands/floodplains, water quality, geotechnical and groundwater impacts, solid and hazardous waste, noise and construction impacts; (iii) urban design; (iv) historic issues; (v) infrastructure, including water, sewer and energy systems; (vi) housing impacts; (vii) employment benefits and (viii) public benefits.

I TRANSPORTATION ISSUES

An analysis of the transportation impacts of the Project as compared to those of the Olmsted Plaza project, prepared by Abend Associates, the transportation consultant to the Project, is attached as Exhibit D. This report demonstrates that the traffic impacts from the Project are substantially less than those accepted as part of the Olmsted Plaza approvals. This is mainly due to the significantly smaller size of the Project and the fact that retail use spreads traffic impacts throughout the day rather than at peak commuting hours.

II ENVIRONMENTAL ISSUES

1. Wind. The Olmsted Plaza project, which consisted in part of the construction of two office buildings exceeding 100 feet, and a garage building 92 feet in height, had a far greater potential impact on wind conditions. The portion of the Project consisting of the conversion of the main Sears building to a parking stucture has little or no potential for creating changes in existing wind flow patterns. In fact, the renovation of this building to an open parking structure will tend to eliminate pressure gradient opportunities, thereby reducing general wind

flow relative to that generated by the original structure, which, under the Olmsted Plaza scheme, was to have remained with solid, not partially open, walls.

The new retail building is planned to be approximately the same height as the existing auxiliary buildings behind the Sears warehouse, and is "attached to" the main building. This eliminates the possibility for wind channeling that would have occurred between the taller separate buildings in the Olmsted Plaza scheme. Overall, the Fenway Plaza project will cause very minimal, if any, wind impacts on adjacent streets and properties and far less wind impact than the previously-approved Olmsted Plaza project.

2. Shadow. As discussed above with regard to wind impacts, the proposed retail facility will not generate any significant shadow impacts. The entire Project, with its retail building approximately the same height as the existing three story buildings on the Site, will have minimal, if any, impact on adjacent streets and properties. There will be a slight increase in shadows along Fullerton Street over existing conditions because the new retail building will be closer to the street than the existing buildings. However, there will be less shadow impact on adjacent streets and properties then was the case with the Olmsted Plaza Project, with its significantly taller, multiple buildings.

3. Daylight. As with wind and shadow impacts, the Project will have little or no potential for increases in the obstruction of daylight to adjacent streets and properties. The Project with its retail building approximately the same height as the existing three story buildings on the Site, but built slightly closer to Fullerton Street, will generate very modest increases in the obstruction of daylight relative to existing conditions. However, the Project will produce an overall decrease in the obstruction of daylight to adjacent streets and properties relative to the approved Olmsted Plaza scheme, with its taller, multiple buildings.

4. Air Quality. The Site is located in an area which has several sensitive receptors including hospitals in the Longwood Medical Area, residential neighborhoods and several schools. The detailed air quality analysis submitted in the Olmsted Plaza DPIR found that, as a result of that project, there would be no violations in the surrounding area of the one-hour CO National Ambient Air Quality Standards ("NAAQS") and only two intersections with violations in the eight-hour NAAQS, which were to have been remediated with traffic mitigation measures. With significantly fewer vehicle trips on a daily basis and during the morning peak hour as well as fewer vehicle trips during the evening peak hour, it is expected that the Project will have lesser impacts on air quality than the impacts projected for the Olmsted Plaza project. The two locations where mitigation was necessary to meet the NAAQS for eight-hour carbon monoxide emissions under the Olmsted Plaza project will also be the subject of mitigation for the current Project. The same air quality improvements are expected as with the previous project.

5. Wetlands/Floodplains. The Olmsted Plaza DEIR demonstrated that of the five inland wetland resource areas under the Massachusetts Wetlands Protection Act, only one of these resource areas, Bordering Land Subject to Flooding, is applicable to the Site. The particular resource in question is the 100 year flood plain associated with the Muddy River.

Based on the National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) for this area of Boston (Community Panel 2502860009C, effective date April 1, 1982), the 100 year flood plain elevation at the Site is interpolated to be 10.5 feet NGVD. The City of Boston datum is 5.65 feet greater than NGVD. Thus, based on the FIRM, the 100 year flood plain is at elevation 16.15 feet, City of Boston Datum.

A question was raised in the Olmsted Plaza DPIR as to the accuracy of the FIRM for the area surrounding the Site. The DPIR reported that according to the detailed flood profile graph for the Muddy River near the Site (which is more accurate than the FIRM), the 100 year flood should be completely contained within the existing Muddy River culverts opposite the Site. The project proponent will continue to explore the possibility with the United States Army Corps of Engineers and other relevant agencies that the FIRM be updated to reduce or eliminate the portion of the Site that is actually in the flood plain. As a preliminary matter, however, and as a "worst-case" scenario, the proponent has assumed the accuracy of the FIRM.

The Olmsted Plaza Project design was such that there would be of no loss in flood storage capacity. The proposed Project design will also maintain a no net loss of flood capacity. To the extent required, this will be accomplished by regrading the exterior parking lot areas to compensate for a 0.5 acre/feet loss of flood storage volume caused by ground floor building expansion within the 100 feet flood plain, primarily between elevation 15 and 16.15.

6. Water Quality. The Olmsted Plaza DPIR demonstrated that under existing conditions, the Muddy River which was above-ground north and south of the Site does not meet the minimum water quality standards for Class C waters due to substantial urban runoff from surrounding areas, although the River is classified as such under the Massachusetts Surface Water Quality Standards. As proposed for the Olmsted Plaza project, in order to prevent any further degradation of the River's water quality as a result of the Project, several mitigation measures will be adopted including not using sodium chloride de-icing chemicals, fitting of catch basins with oil and grease separators and sedimentation pumps, decreases in the amount of surface parking over existing conditions and enhancement of existing landscaping over existing conditions.

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7. Geotechnical and Groundwater Impacts. The existing conditions on the Site with respect to these areas are well documented in the Olmsted Plaza DPIR, and investigations by the Project's consultants have shown that there are no changes in these underlying conditions. The Olmsted Plaza project required excavation for the construction of three new buildings of 92 - 150 feet in height. Although geotechnical plans have not yet been finalized, it is presently anticipated that the Project will make extensive use of the existing foundations of the warehouse additions to be demolished, and that any new excavation will be have a lesser impact than the Olmsted Plaza project. Similarly with respect to groundwater impacts, while some dewatering will likely be required, as with the Olmsted Plaza project, design measures will be implemented as necessary to mitigate any potential adverse impact.

8. Solid and Hazardous Waste. The Olmsted Plaza project, primarily a medical laboratory and research facility, would have generated substantial amounts of hazardous waste in its normal operations, including toxic chemicals, biological materials, radioactive materials and animal waste. As no such facilities are being proposed for the proposed retail Project, the Project will have significantly less impact on the use, storage and disposal of hazardous materials than Olmsted Plaza.

With respect to the presence of oil and hazardous materials on the Site, a detailed oil and hazardous material Site evaluation was submitted as an Appendix to the Olmsted Plaza DPIR. Following that submission, further Site evaluation was performed by GZA GeoEnvironmental, Inc., the hazardous materials consultant for the Project. The Site was classified as a non-priority Site by the DEP, and there is nothing to indicate that there has been any change in the environmental condition of the Site since that time. The Site will be remediated in accordance with the newly implemented Massachusetts Contingency Plan. With respect to asbestos-containing materials, based on information that has been made available to the project proponent, we understand that the majority of asbestos containing materials have been removed from the main building.

With respect to solid waste disposal, the demolition of existing structures as part of the Project will result in less material to be disposed of than the approved Olmsted Plaza project, and such disposal will be performed utilizing all standard procedures and in accordance with all applicable law. The normal solid waste generated by the Project, once operating, is estimated at approximately 1300 tons per year compared to over 2300 tons per year predicted in the Olmsted Plaza DPIR for that project.

9. Noise. The Olmsted Plaza project considered the sensitive receptors in the area of the Site, which remain basically the same. The DPIR also contained a fairly detailed study of the likely noise impacts of the operation of the Olmsted Plaza project and determined that it was not expected that project would have any adverse noise impact on the

surrounding community. There is virtually no difference in overall impacts between the Olmsted Plaza project and the current Project. In both cases, upon completion, the project's principal impacts are associated with automobile traffic, which is already heavy in the area, so that there would be no change in noise levels.

10. Construction Impacts. Because of the smaller size of the Project as compared to Olmsted Plaza, construction noise generated by the Project will be less than the levels predicted in the detailed Olmsted Plaza DPIR. Moreover, the duration of such noise should be far shorter. Construction for the Olmsted Plaza project was expected to be approximately 2 years for the main building alone, and about 18 months for the two office buildings thereafter, for a total of 3.5 years. Construction on the present Project is expected to be complete in a 12-month period. Consequently, the Project will have a far lesser impact in terms of construction noise (and other construction impacts such as dust and pollution emissions) than the Olmsted Plaza project.

III URBAN DESIGN

The contextual design described in the Olmsted Plaza DPIR are identical with the current Project, with the additional further deterioration of the Historic Landmark structure and increased demand from neighborhood groups for uses that serve the community. The Project's urban design impact diverges dramatically from the Olmsted Plaza project with reduced building heights and massing, greater setbacks from Park Drive, and use of the landmark to provide public uses and access to the site in contrast to Olmsted Plaza's institutional nature. The following are key issues addressed in the urban design.

The Project has been planned and designed:

- To re-use the historic Sears Roebuck building, repairing existing structure and finishes, and restoring and expanding ground floor openings.
- To re-use the existing service vehicle access and curb cuts to the extent possible.
- To provide a totally public use comprised of retail stores with associated parking.
- To provide covered and lit pedestrian walkways through the Site connecting the neighborhood, the MBTA and the new uses.
- To enliven the street with new retail along Brookline Avenue and Park Drive.
- To return the "missing link" parcel for the ultimate extension by the City as Parkland.

- To use materials that complement the historic Sears building.

The Project differs from the Olmsted Plaza project as follows:

- The proposed retail use is open to the public as opposed to institutional or closed.

- The massing of the new retail facility (relatively low, 3 stories) more nearly matches the existing commercial and residential building scales within the immediate neighborhood in contrast to the several high rise buildings proposed in Olmsted Plaza.

- Views contained in the Olmsted Plaza proposal showed a building that would dwarf its neighbors thereby inhibiting sunlight and sky view.

- The visual prominence of the historic main Sears building will not be compromised by competing adjacent, high rise structures as contained in the Olmsted Plaza project.

IV HISTORIC RESOURCES

The historic resources in the area surrounding the Project, as well as of the Sears building itself, are fully analyzed in the Olmsted Plaza DPIR. The main Sears building (excluding the warehouse additions) have been designated as a Boston Landmark and the balance of the Site has been designated as a Protection Area by the Boston Landmarks Commission. The main building also has been listed on the State and National Registers of historic places..

The building has been totally unused since 1988 and is presently deteriorating by virtue of continuing settlement and extensive water damage. Elements of facade in some areas are threatening to fall off. The Project revitalizes the historic nature of the landmark through the following strategies: continuation of the historic retail nature of the Project; renovation of the existing structure and addition of a new retail structure that are in contextual scale, massing, and materials; and repair/restoration of the rapidly deteriorating exterior and lobby of the main structure.

The existing windows in the tower of the main building will be retained and repaired. The remaining existing steel framed windows are proposed to remain, with the removal of glass, repair and re-finishing of historic frames. Original window openings on the first floor and area ways to the basement are proposed to be resurrected and provided with a metal grill to match existing window frames. It is proposed that these openings be extended to a lower sill height to provide safety and light for the first floor. Of the opening on the first floor, it is proposed that six serve as the entrances and exits for the parking strcture.

In addition to the restoration of the main building, the Project will also contribute to the area's historical resources by causing the conveyance to the City of the "missing link" parcel of the Emerald Necklace for restoration by the City as parkland. Absent the Project, this parcel is likely to continue to be used as a parking lot for the foreseeable future.

V INFRASTRUCTURE

1. Water. As in the case of the Olmsted Plaza project, the water source for the Project will be the MWRA system. Based on Title V of the Massachusetts Sanitary Code, the Olmsted Plaza FPIR estimated a total water usage of up to approximately 144,000 gallons per day (gpd) exclusive of water consumption of 73,000 gpd for summer cooling, for a total of 217,000 gpd. The Project, with its proposed retail and related uses, will utilize approximately 50,000 gpd. Unlike the Olmsted Plaza project, which was water cooled, the current Project will be air cooled, resulting in significant conservation of water in the summer months. The Project will implement water conservation measures, including the use of water saving fixtures. Overall, the Project will have a far lesser water consumption than the Olmsted Plaza project.

2. Sewer. As in the case of the Olmsted Plaza project, sanitary sewage for the Project will be conveyed through the MWRA's existing Charles River Valley Sewer interceptor which abuts the Site along Brookline Avenue to the Boston Main Drainage Tunnel and ultimately to the Deer Island Treatment Plant. Total wastewater for the Olmsted Plaza project was estimated at over 153,00 gpd in peak summer months based on Title V flow rates. According to the FPIR, the Boston Water and Sewer Commission indicated that there was adequate capacity to service the increase in sewer flows that were to result from that project. The proposed Project will generate approximately 44,000 gpd of sanitary sewage flows. In addition, the Olmsted Plaza project would likely have generated wastes that are classified as industrial by the MWRA, thereby necessitating a Industrial User Discharge permit from the MWRA. Such discharges will not be made from the Project. The Project will, overall, have a far lesser impact on sewer capacities than the Olmsted Plaza project.

With respect to storm drain systems, because the Site is presently almost entirely paved, with minor landscaping along Brookline Avenue, there should be no increase in storm water runoff from the Project to the Muddy River conduit. As with the case in the Olmsted Plaza project, new catch basins will be installed with to adequately drain storm water runoff and oil and grit separators will be installed in the parking structure's drains to minimize the discharge of pollutants into the storm water system.

3. Energy. The energy capacity for the Olmsted Plaza proposal is detailed in the FPIR. Due to the significant reduction in square footage

of the proposed Project, the consumption of gas and electric energy sources is anticipated to be far less than that of the Olmsted Plaza project. Space heating for the Project is anticipated to be provided by gas-fired roof top units, with an estimated gas energy consumption of 16.5 CF/YR x 10 ^{6}, as opposed to 67.0 CF/YR x 10 ^{6} for the Olmsted Plaza project. Electrical use for the Project is estimated at 20.0 x 10^{6} KWHR/YR, as opposed to 60.6 x 10^{6} KWHR/YR for the Olmsted Plaza project.

VI HOUSING IMPACTS

The developers of the Project are prepared to make a full contribution of housing linkage funds as set forth in Article 26A of the Code in amounts and with a payment schedule to be determined in accordance with the provisions of Article 26A of the Code, as the same may be affected by the 121A process.

VII EMPLOYMENT IMPACTS

The developers of the Project are prepared to make a full contribution of jobs linkage funds as set forth in Article 26B of the Code in amounts and with a payment schedule to be determined in accordance with the provisions of Article 26B of the Code, as the same may be affected by the 121A process. In addition to these direct monetary contributions, there will be significant new job creation generated by the Project, which is discussed in part VIII below.

VIII PUBLIC BENEFITS

The project proponents are committed to a comprehensive public benefits package including the linkage requirements specified above and conveyance of the "missing link" parcel to the City, with an estimated value of $2,000,000. The Project will be a great boon for the City and the surrounding neighborhoods, by providing up to 1,200 construction and 1,000 permanent jobs; by integrating the Site, which is presently isolated from the neighborhood into the surrounding community; by restoring the Site to its historic use and, at the same time, providing a much-needed retail center for the surrounding neighborhoods; and by initiating such traffic improvements as may be warranted upon completion of a detailed traffic study. The proponents believe, given the recent history of failed attempts to develop this property, that the Project represents a realistic and comprehensive program for reviving and restoring the Site and appears to be the only plan that could accomplish this goal for the foreseeable future.

We look forward to receiving your response to this letter and to a determination from you and from the BTD on the scope of any further environmental review that may be desired.

Very truly yours,

Arrowstreet, Inc.

cc: Andrew McClurg
Boston Transportation Department
Joseph Fallon
New England Development
Michael J. Haroz, Esq.
Goulston & Storrs

/3430

1.0 APPLICANT INFORMATION

1.0 APPLICANT INFORMATION

1.1 Project Identification

This document is a Supplemental Project Impact Report/Notice of Project Change ("SPIR/NPC") for the Fenway Plaza project (the "Project"), a retail development to be undertaken at the Site. This SPIR/NPC describes the environmental impacts of the Project and compares them to those of the previously approved Olmsted Plaza project.

1.2 The Development

The developer of the Project is New England Development. The ownership entity for the Project is CRKF Realty Trust (the "Trust"), a Massachusetts nominee trust of which Julian Cohen, Daniel E. Rothenberg, Stephen R. Karp and Steven S. Fischman are the trustees. The beneficiary of the Trust is CRNED Fenway Limited Partnership, a Delaware limited partnership, with CRNED Fenway, Inc., a Delaware corporation, as its general partner. The Trust is an affiliate of New England Development and C & R Management Corporation, both Massachusetts-based companies with long track records of successful retail developments throughout New England.

The development team for the Project includes several advisors and consultants that have contributed to the compilation of the information presented in this document. The complete list of consultants is attached hereto as Appendix 1.2.

1.3 Currently or Formerly Owned Developments in Boston

The Trust has not undertaken any previous developments in Boston. Affiliates of the Trust have undertaken a vast array of retail projects in New England, in both urban and suburban settings, including the Mall at Chestnut Hill, CambridgeSide Galleria, The Mall at Rockingham Park, the Atrium, Northshore Mall, Square One Mall, Emerald Square Mall and Liberty Tree Mall.

1.4 Legal Actions Pending

There are no legal judgments or actions pending with respect to the Project.

1.5 Tax Arrearages

There is no history of, or current, property tax or 121A arrearage on any properties in Boston owned by the Trust or any of its affiliates.

1.6 Evidence of Site Control

The Project consist of the development of the Site, which is currently owned in fee by Sears, Roebuck & Co., a New York corporation ("Sears"). Sears and the Trust have entered into a Purchase and Sale Agreement and anticipate the transfer of the Site to the Trust on or before December 23, 1994. This Purchase and Sale Agreement also provides for the simultaneous transfer of another property owned by Sears but not part of the Project, which is a parcel across Park Drive from the main Sears building (the "Missing Link Parcel"). The Purchase and Sale Agreement provides for, at the Trust's election, a simultaneous transfer of the Missing Link Parcel from Sears to the City, or another governmental body.

1.7 Public Easements Surrounding the Site

There are no known significant public easements into, through or surrounding the Site.

1.8 Regulatory Status

This document constitutes a Notice of Project Change for the previous Olmsted Plaza Project pursuant to 301 CMR 11.17 as well as a Supplemental Project Impact Report in response to the BRA Scoping Determination dated April 13, 1994 (the "BRA Scoping Determination") under Article 31 of the Boston Zoning Code (the "Code"). As was the case with the Olmsted Plaza Project, the Project is expected to be subject to a series of federal, state and local permit requirements. Attached as Appendix 1.8 is a tentative list of the permits that may be required for the Project. Applications for these permits will be submitted beginning in the spring of 1994. The list of permits included as Appendix 1.8 is subject to change based upon refinements in the design of the Project.

As stated in the BRA Scoping Determination, the Site is a Planned Development Area ("PDA"). Under the Code, development within a PDA typically requires the submission and approval of a Development Plan and subsequent receipt of "exceptions" from the Board of Appeal for any zoning relief that is required. The Project proponent, however, will be seeking approval of the Project under M.G.L. c. 121A and Chapter 652 of the Acts of 1960, as amended ("Chapter 652"). Under Chapter 652, the BRA is granted the exclusive authority to grant deviations from, among other things, the Code. Therefore, any and all zoning relief that may be required for the Project must and will be sought from the BRA as part of the 121A Application for the Project. The proponent presently anticipates seeking zoning deviations from requirements related to the PDA designation, use (including parking structures and parking lots and certain other anticipated uses), floor area ratio, rear yard depth, parapet setbacks, loading and loading bay design, development within a flood hazard district, signage and schedule of payments under Articles 26A and 26B of the Code. The foregoing is a tentative list and is subject to change as the 121A Approval process progresses.

1.9 Abutters and Community Groups

The proponent has met extensively with numerous community groups and local and state governmental agencies to discuss the Project and anticipates the continuation of such meetings throughout the development process. Attached as Appendix 1.9 is a list of the abutters to the Site, as well as a list of community and business groups which may be substantially interested in or affected by the Project.

1.10 Financial Information

Total development cost is presently estimated to be approximately $90,000,000.00. This estimate includes land costs, construction costs, interest carrying costs and initial operating losses. A breakdown of hard and soft costs and an operating pro-forma will be submitted to the BRA as part of the 121A Approval process.

2.0 PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1 Existing Conditions of the Site

A detailed discussion of the existing condition of the Site and surrounding areas was included in the Olmsted Plaza DPIR/DEIR and is attached hereto as Appendix 2.0. Since the time of the submission of the Olmsted Plaza report, conditions on the site have remained essentially the same, with the Site isolated from its environs, lacking any significant pedestrian activity and with essentially no access to and through the Sears building. See Site Locus Map Figure 2.1-1, and also Figures 2.1-2 and 2.1-3.

2.2 Summary of the Project

The Project consists of the development of approximately 450,000 square feet of gross leasable area of retail and related space on the Site. See Program Comparison to Olmsted Plaza Table 2.2-1. This retail project will serve a fairly limited geographical area, given the numerous shopping centers located within a relatively short driving distance from the Site. Accordingly, the Project will be especially attractive to residents of the neighborhoods surrounding the Site. As an example of this aspect of the Project, it is presently anticipated that among the tenants will be a full-service supermarket for the benefit of neighborhood residents. The original main building presently on Site, the former Sears Catalog Merchandise Distribution Center (shown as Sections A - D on Figure 2.2-1), will be converted into an open parking structure for tenant and monthly parking use, with approximately 37,000 square feet of space on the first level of the main building devoted to retail use. The parking structure will contain approximately 1,300 parking spaces devoted exclusively to the customers of the retail tenants in the building and approximately 1,030 parking spaces which will be rented on a monthly basis. The approximately 300,000 square feet of warehouse buildings located to the rear of the main building (Sections E, F and M shown on Figure 2.2) will be wholly or partially demolished in order to make room for the new retail development. The retail development will be a three story structure with a partial basement that will surround the easterly and northerly sides of the main Sears building. Of the total of approximately 700 surface parking spaces currently in existence, a total of 550 surface parking spaces will be eliminated and about 150 parking spaces will remain along the Park Drive frontage of development in order to service the tenants, in particular the supermarket. Thus, there will be a total of 1,450 spaces (1,300 in the parking structure and about 150 surface spaces) devoted exclusively to retail uses. Among these eliminated surface parking spaces will be 268 parking spaces located on the so-called "missing link" Emerald Necklace parcel located across the Site from Park Drive which will be donated to the City for restoration by the City as park land.

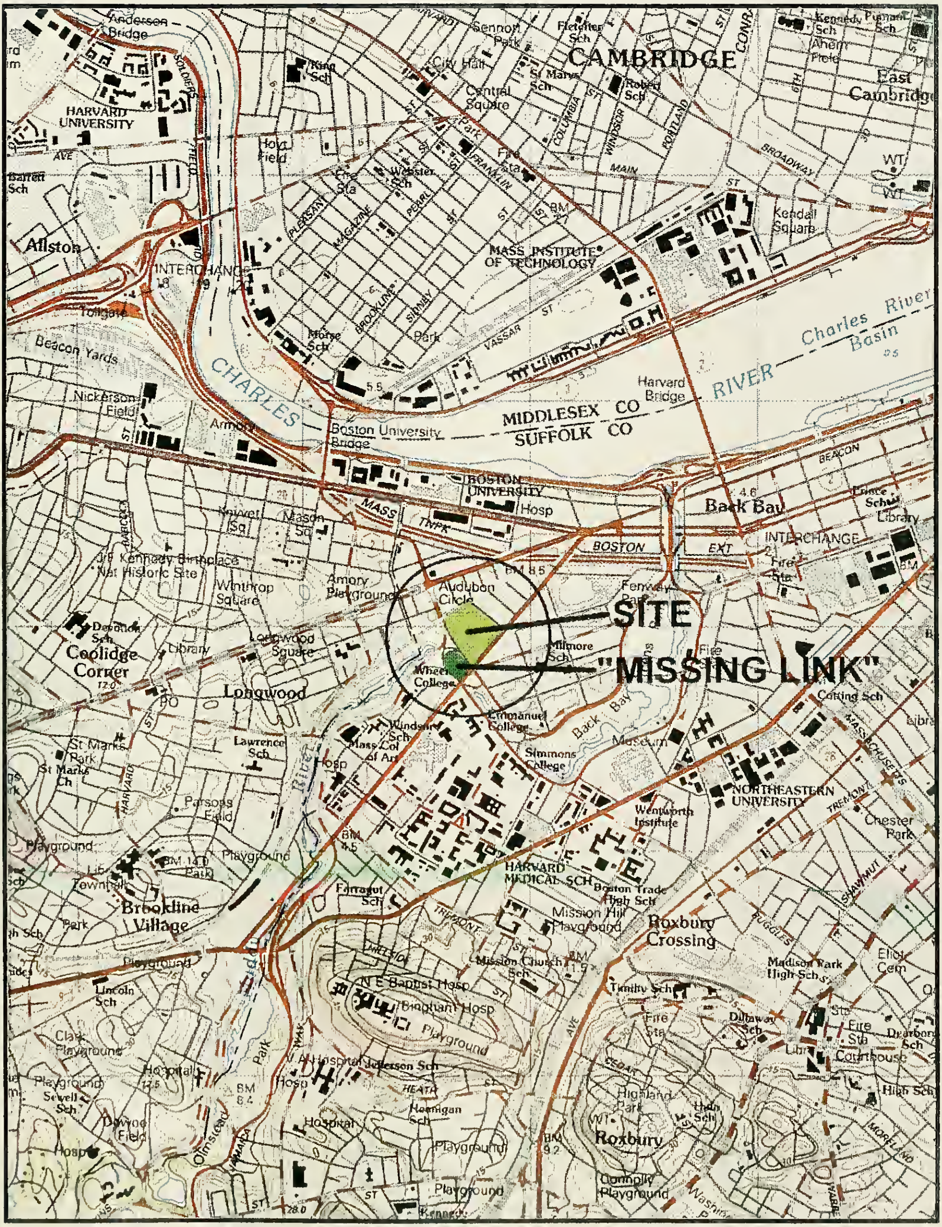
Please see figures 2.2-3 through 2.2-8 which illustrate the Fenway Plaza in Plan, Section and Elevation.

There will be entrances to the retail facility from the open parking structure as well as entrances along Brookline Avenue and Park Drive. Access to the parking structure for the retail spaces will be via one curb cut on Park Drive and Brookline Avenue, which will be in their approximate current locations. The monthly parking will be limited to the top four floors of the parking structure and the structure will contain express ramps for these parkers, who will enter via a separate controlled entry from Fullerton Street. The retail spaces will be dedicated solely to retail stores; strict controls will be utilized to prevent the use of these spaces by commuters or other parkers.

Pedestrian access and circulation will be greatly improved through the construction of interior walkways and an outdoor covered walkway from the MBTA station. New walkways and entrances will be constructed between various points of the Project and the MBTA station, existing stairs to the station will be improved and better lighting will be provided, all resulting in increased ease of access to the T. The Site's overall appearance will be improved by the enhancement of landscaping and the elimination of most of the surface parking on the site as well as the replacement of the unsightly warehouse additions to the main building with the new retail building.

The Project will provide numerous benefits to the surrounding neighborhoods and to the City at large. In terms of use, the proposed retail use will reestablish the historic uses of the Site and will be an attractive shopping center for neighborhood residents and other residents of the City. The main Sears building, an important structure which is a Boston, state and federal landmark and which is presently deteriorating, will be restored to active use in accordance with the requirements of all applicable law. As noted above, the "Missing Link" Parcel will be conveyed directly to the City for restoration by the City of this parcel as park land. The MBTA Fenway T Station area will be enhanced by better lighting and new entrances and walkways (both interior and exterior), thereby increasing use and improving the security in and around the T-Station. A public benefits package will include housing and jobs linkage funds. It is anticipated that approximately 1,200 construction jobs and 1,000 permanent jobs will be created. As noted in Section 1.8, the Proponent intends to seek approval under M.G.L. Chapter 121A and chapter 652 of the Acts of 1960 for the Project. The amount of the excise to be paid under Chapter 121A will be determined in the course of the 121A Approval process.

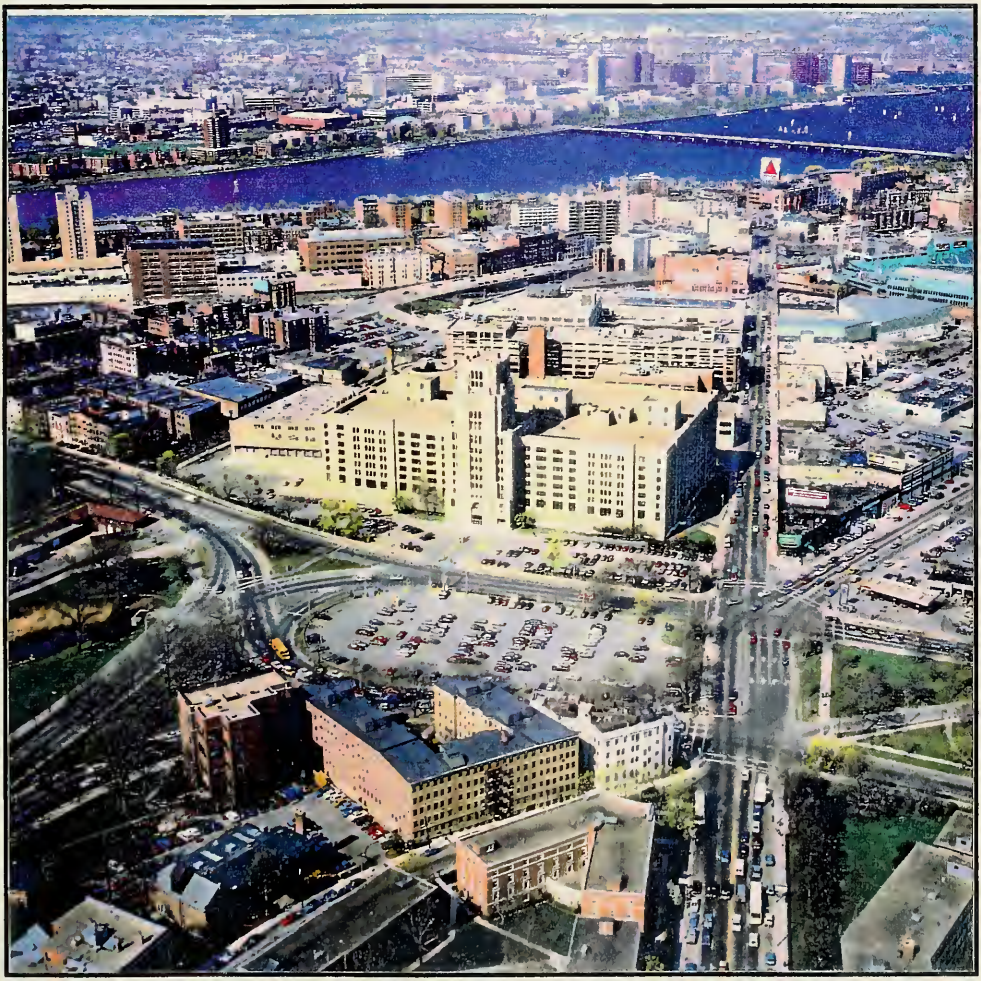
Unlike the Olmsted Plaza project which was a three-phase project to be constructed over the course of six years, the current Project will be built in one phase with an estimated 14 month construction schedule and an opening planned for September, 1995.



Site Locus Map
Figure 2.1-1

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

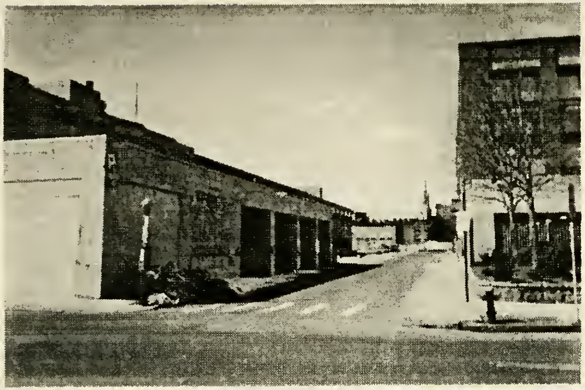
FENWAY PLAZA
A project of New England Development



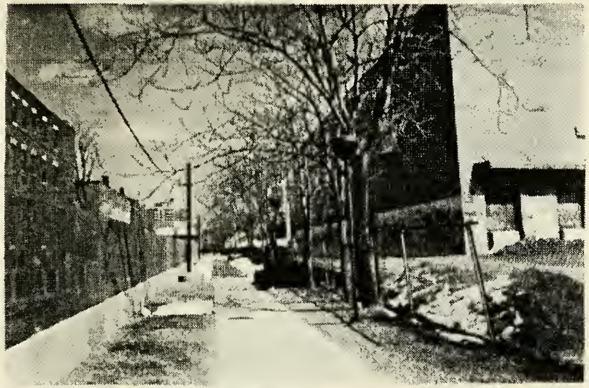
Aerial View from the South
Figure 2.1-2

PARK DRIVE FRONTAGE

BROOKLINE AVENUE FRONTAGE



FULLERTON STREET FRONTAGE



CONRAIL/MBTA FRONTAGE

Similar to Olmsted Plaza EIR fig. 2.2-4

FIGURE 2.1-3
EXISTING SITE PEDESTRIAN VIEWS

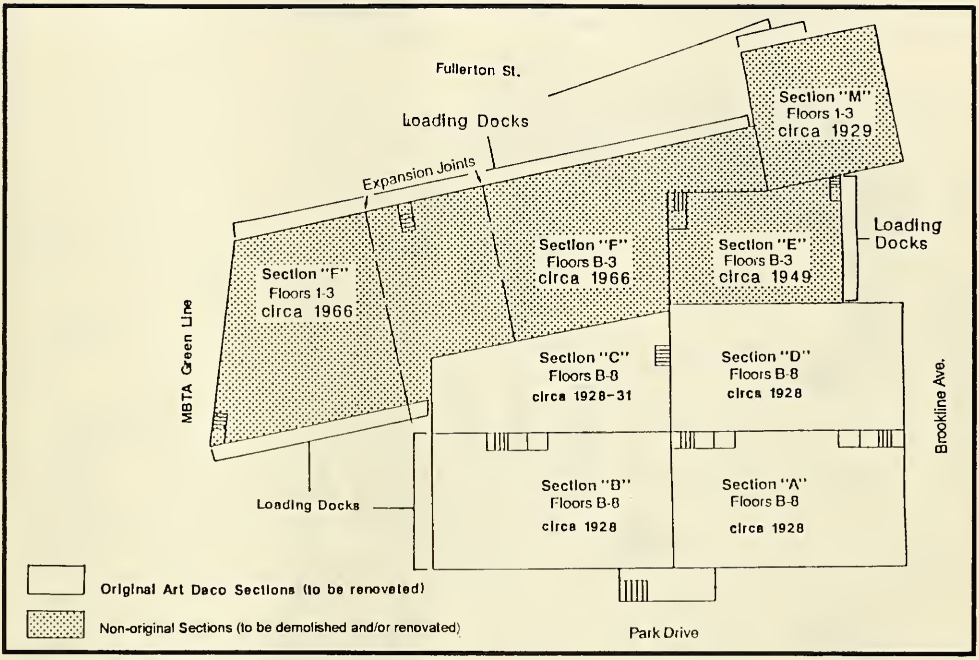
NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
A project of New England Development

TABLE 2.2-1
FENWAY PLAZA PROGRAM
COMPARISON TO PREVIOUSLY APPROVED OLMSTED PLAZA

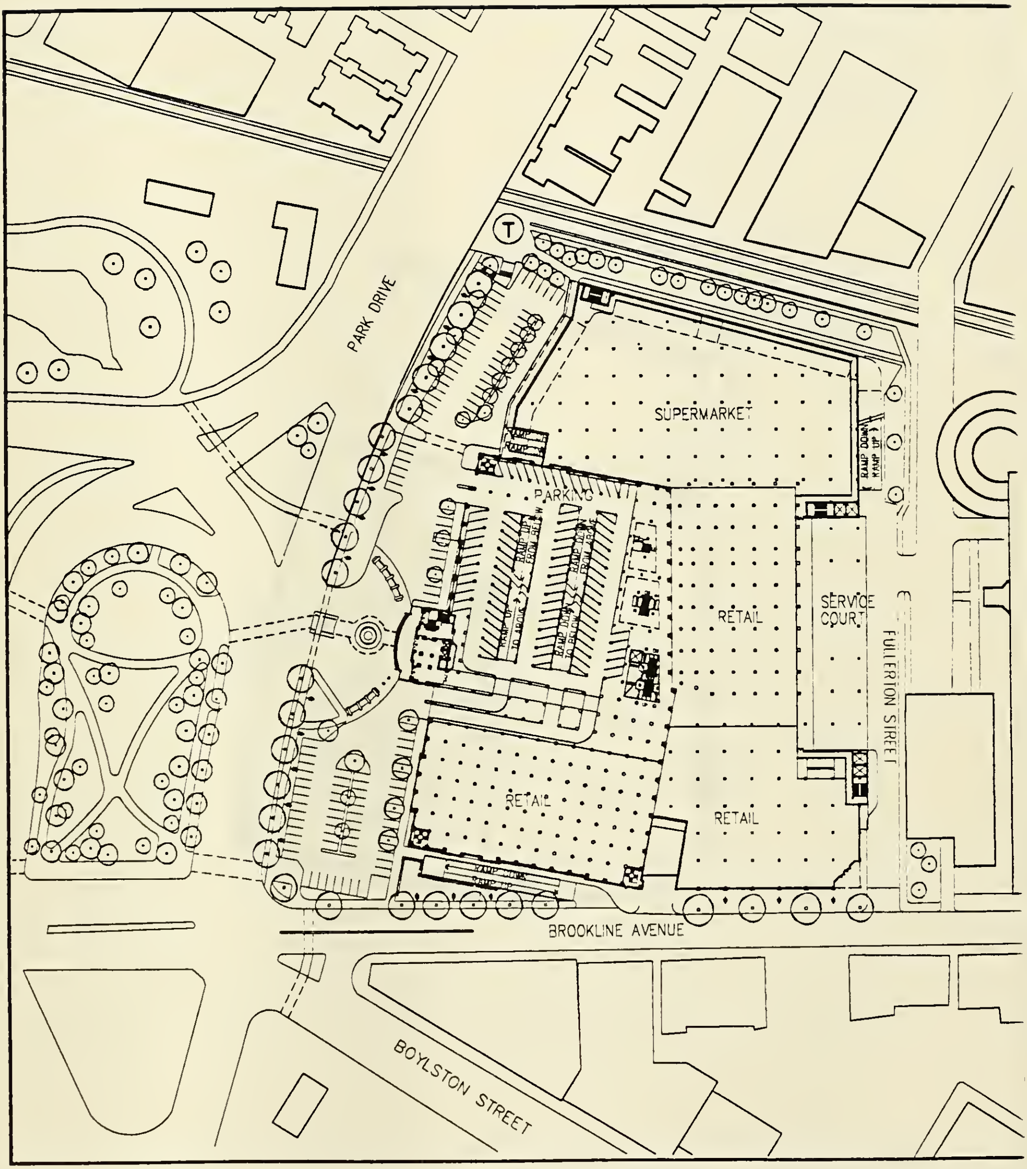
	Olmsted Plaza *	**Fenway Plaza**
1. Sears Building (Historic Landmark)	907,000 SF Medical Labs and Clinic Office and Retail	Conversion into open parking structure (with 37,000 SF GLA of retail on first level)
2. New Buildings	Office Buildings (2) 539,000 GSF	Retail Building 413,000 GLA
PROJECT TOTAL AREA	**1,446,000 GSF**	**450,000 GLA**

* Note: This information was found in the Olmsted Plaza FEIR, Table 2-1.



Taken from Olmsted Plaza D.E.I.R. figure 2.2-6

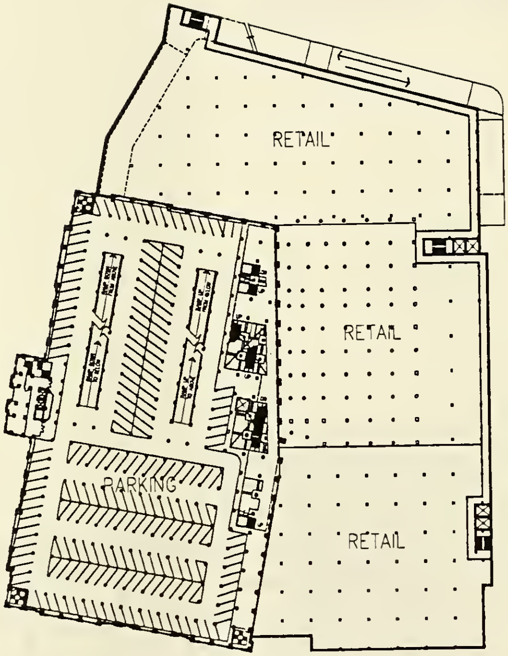
Building Sections
fig. 2.2-1



Site Plan and Level 1 Plan
Figure 2.2-3

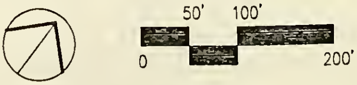
NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

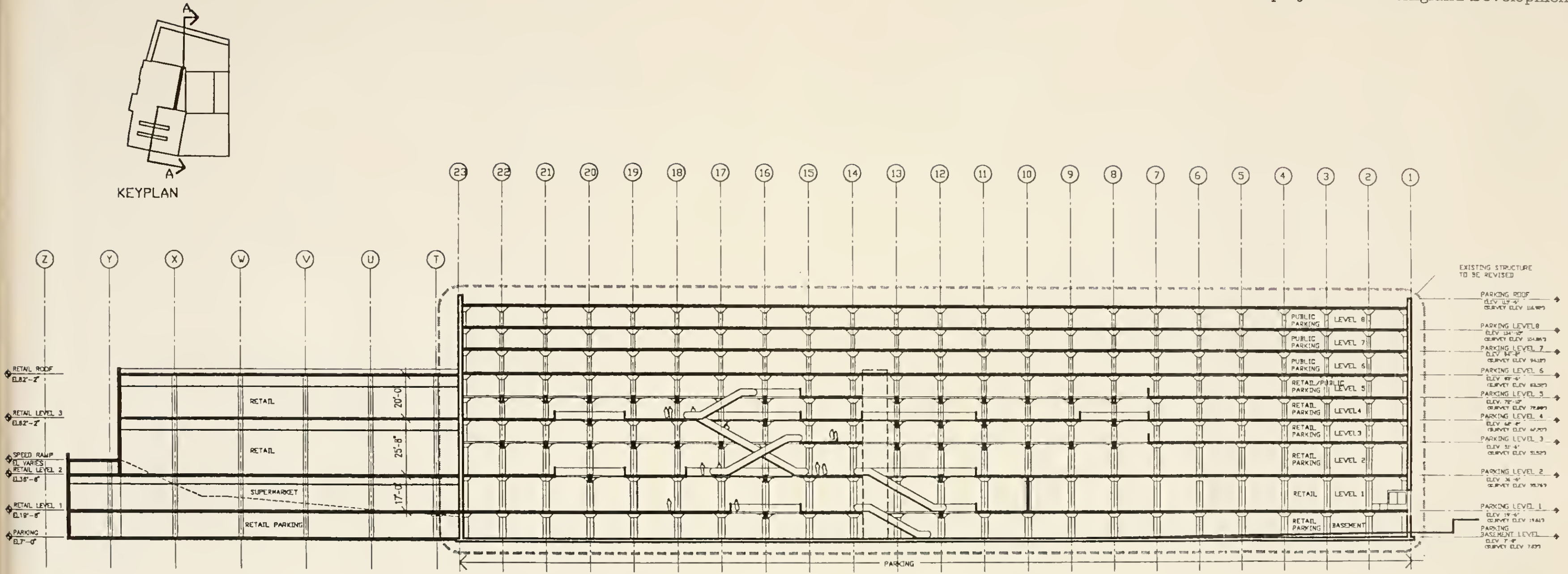
FENWAY PLAZA
A project of New England Development



Typical Plans; Levels 2 and 3

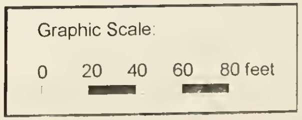
Figure 2.2-4





Building Section Looking East

Figure 2.2-5

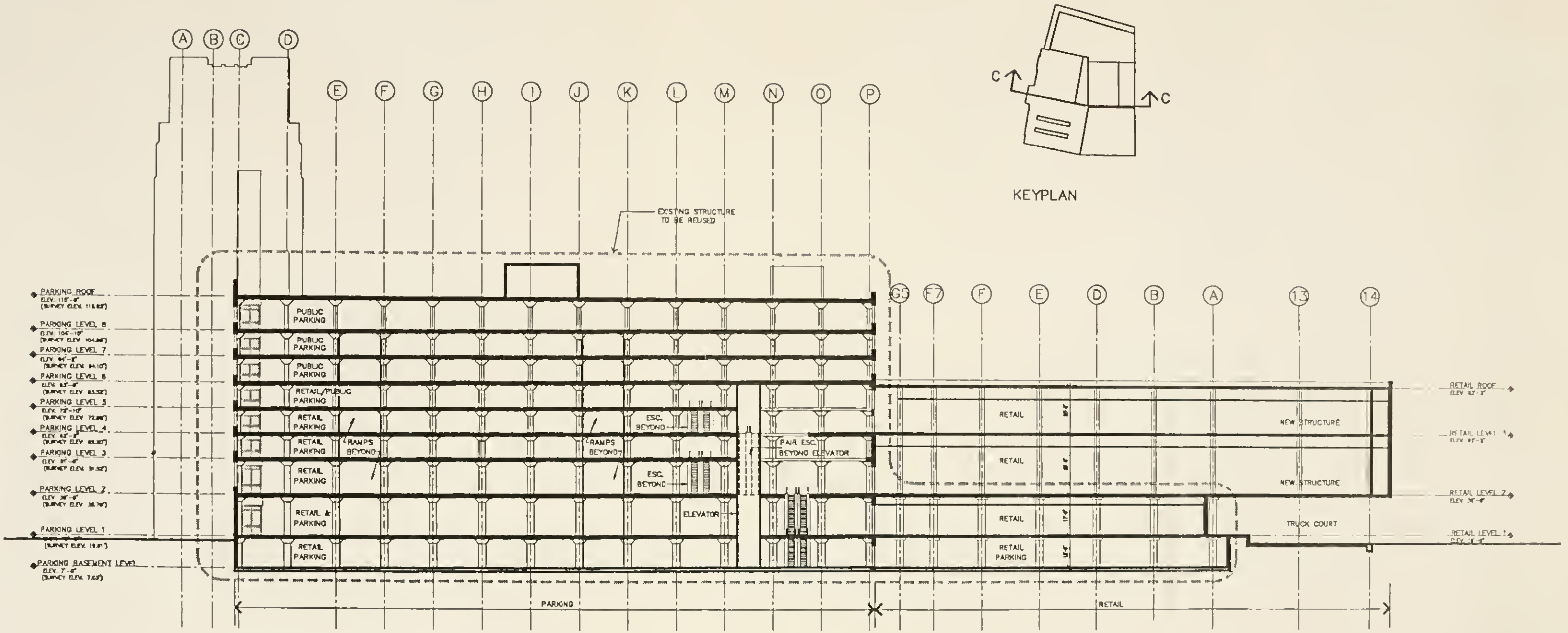


NEW ENGLAND DEVELOPMENT

One Wells Avenue
Newton, MA 02159

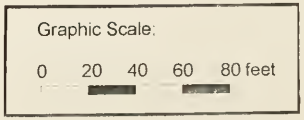
FENWAY PLAZA

A project of New England Development



Building Section Looking North

Figure 2.2-6

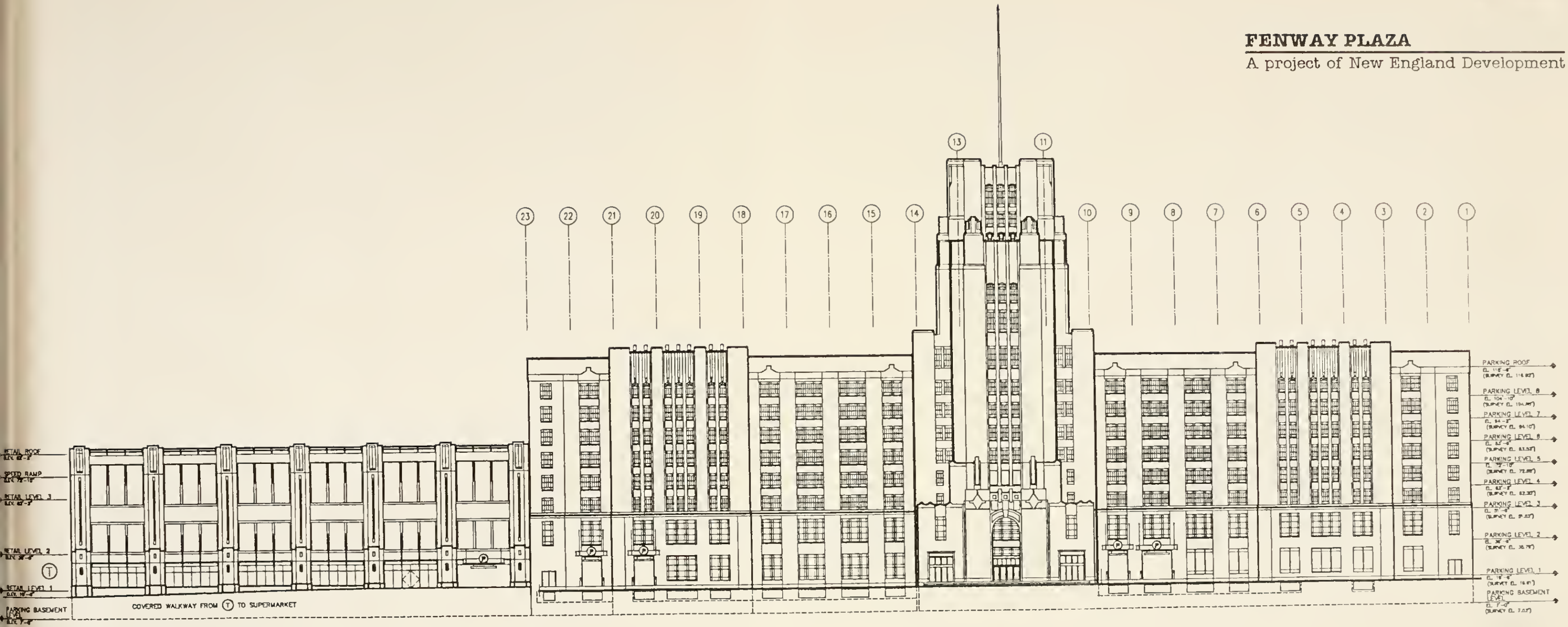


NEW ENGLAND DEVELOPMENT

One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development



Park Drive Elevation

Figure 2.2-7

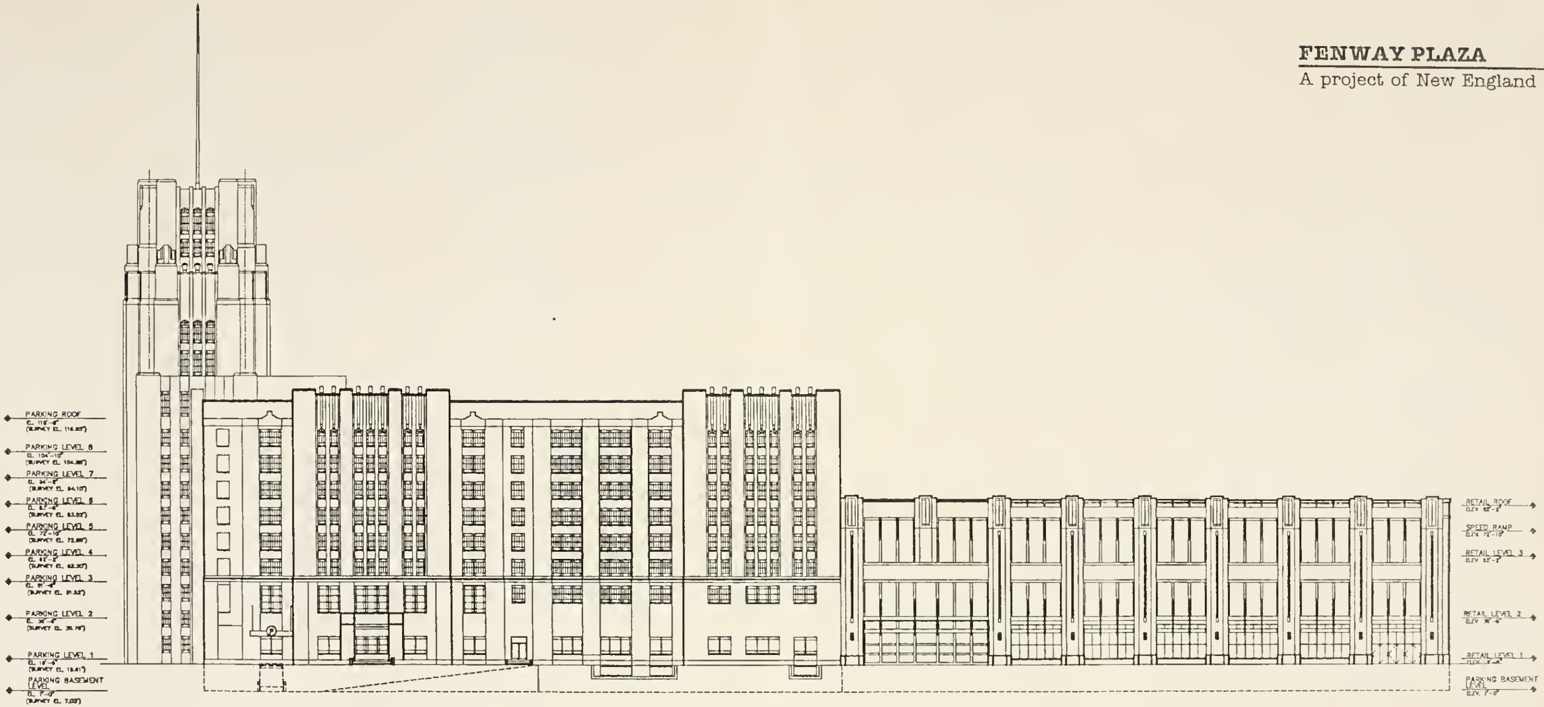
Graphic Scale

0 20 40 60 80 feet

NEW ENGLAND
DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development



Brookline Ave. Elevation
Figure 2.2-8

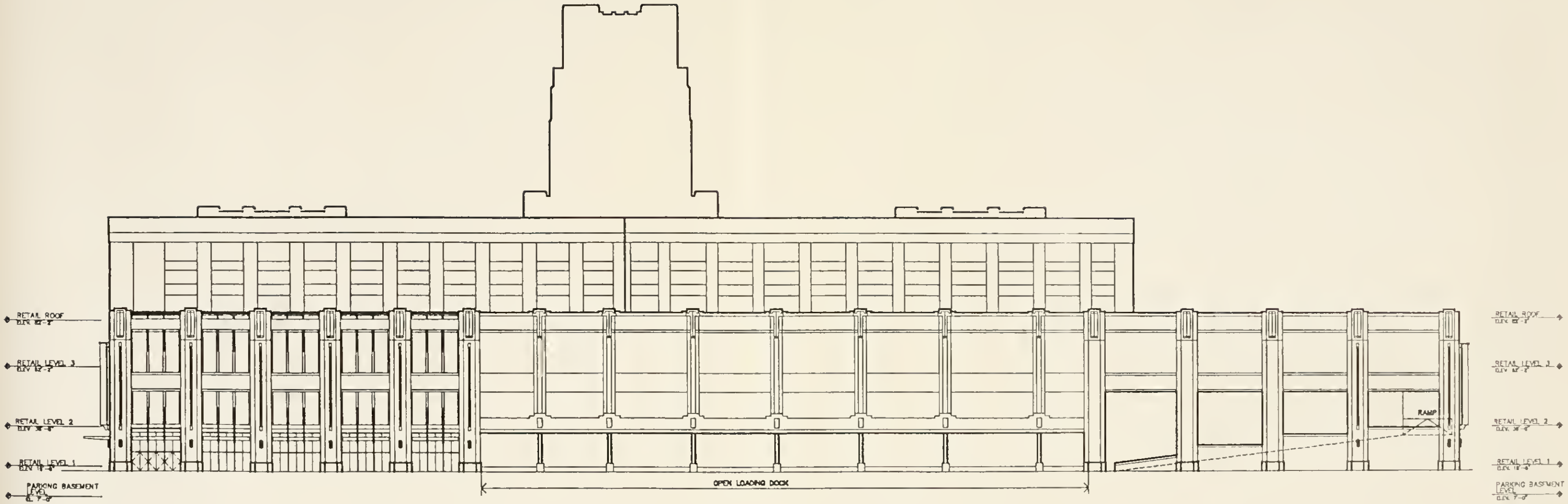
Graphic Scale.
0 20 40 60 80 feet

NEW ENGLAND
DEVELOPMENT

One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development



Fullerton Street Elevation

Figure 2.2-9

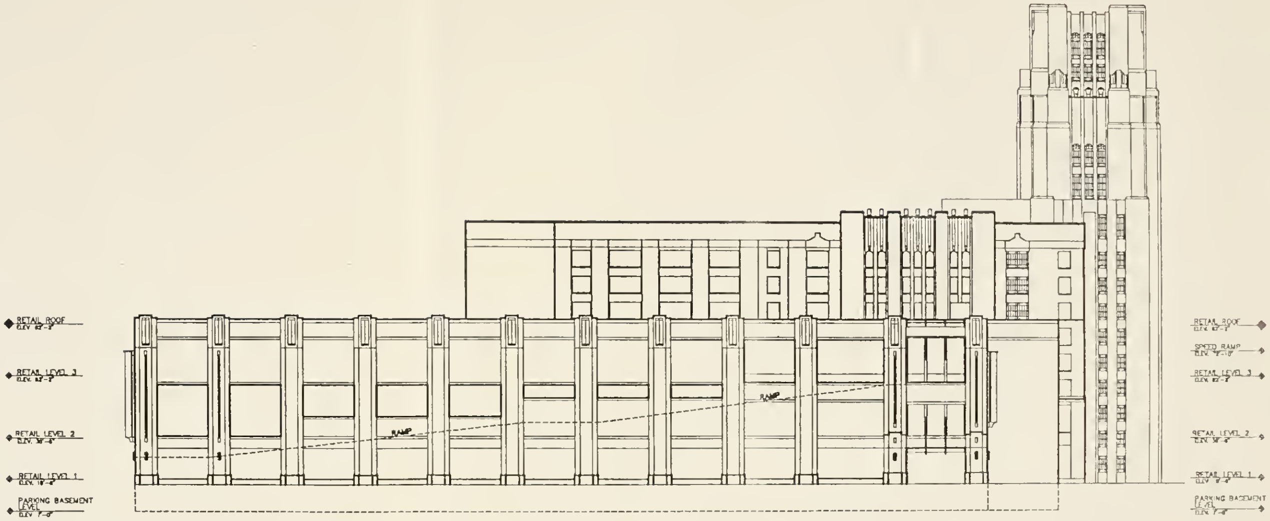
Graphic Scale:

0 20 40 60 80 feet

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

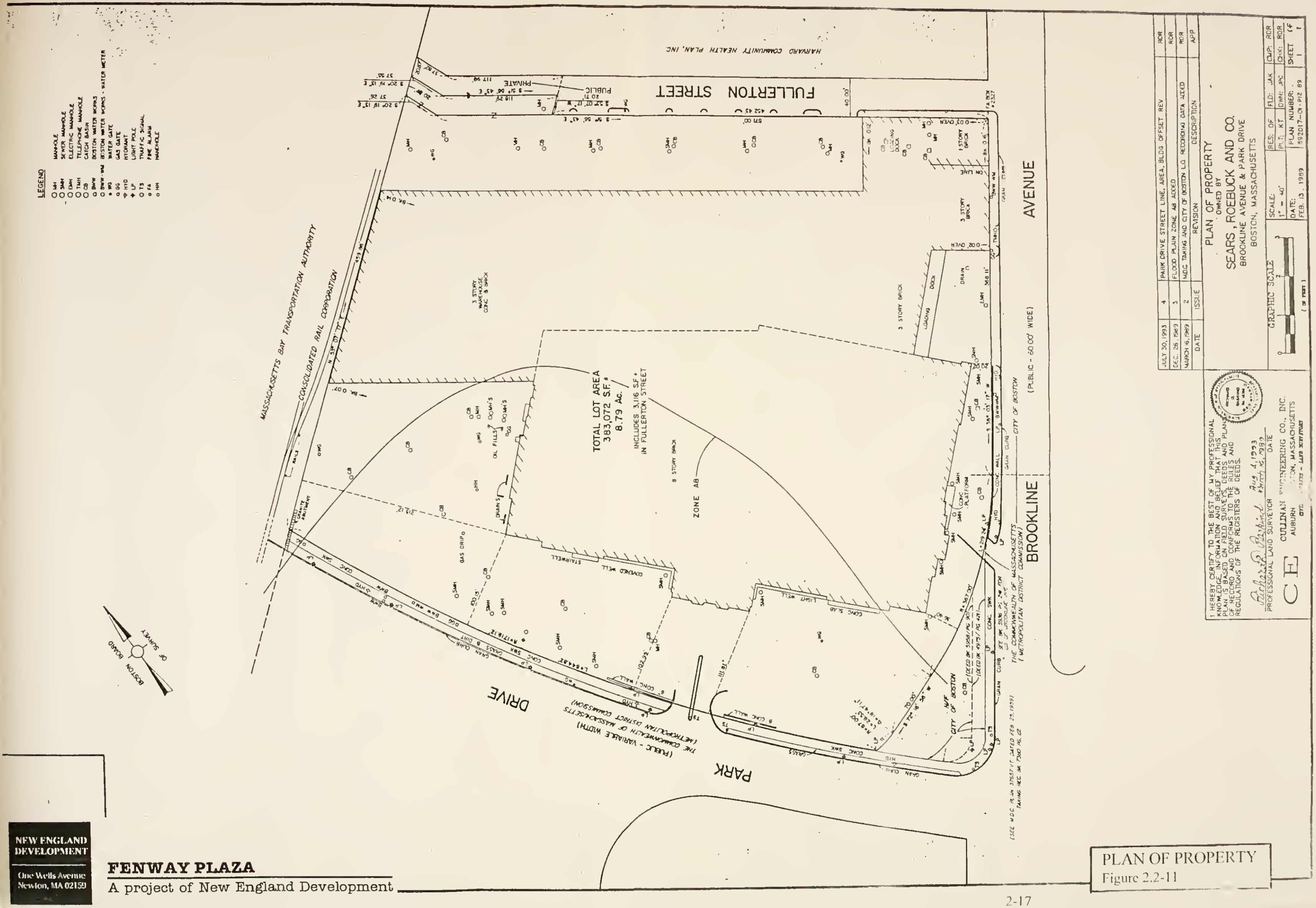


MBTA Elevation

Figure 2.2-10

Graphic Scale:

0 20 40 60 80 feet


LEGEND
○ MH MANHOLE
○ SMH SEWER MANHOLE
○ EMH ELECTRIC MANHOLE
○ TMH TELEPHONE MANHOLE
○ CB CATCH BASIN
○ BWW BOSTON WATER WORKS
○ BWW-WM BOSTON WATER WORKS - WATER METER
• WG WATER GATE
○ GG GAS GATE
HYD HYDRANT
LP LIGHT POLE
○ TS TRAFFIC SIGNAL
○ FA FIRE ALARM
○ HH HANDHOLE
HARVARD COMMUNITY HEALTH PLAN, INC
FULLERTON STREET
PUBLIC
PRIVATE
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
CONSOLIDATED RAIL CORPORATION
3 STORY WAREHOUSE CONC. & BRICK
3 STORY BRICK
TOTAL LOT AREA
383,072 S.F.±
8.79 Ac.
INCLUDES 3,116 S.F.± IN FULLERTON STREET
8 STORY BRICK
ZONE A8
BROOKLINE AVENUE
(PUBLIC - 60.00' WIDE)
CITY OF BOSTON
THE COMMONWEALTH OF MASSACHUSETTS (METROPOLITAN DISTRICT COMMISSION)
PARK DRIVE
(PUBLIC - VARIABLE WIDTH)
BOSTON BOARD OF SURVEY
N/F CITY OF BOSTON
JULY 30, 1993 | 4 | PARK DRIVE STREET LINE, AREA, BLDG OFFSET REV | RDR
DEC. 26, 1989 | 3 | FLOOD PLAIN ZONE A8 ADDED | RDR
MARCH 16, 1989 | 2 | M.D.C. TAKING AND CITY OF BOSTON L.Q. RECORDING DATA ADDED | RDR
DATE | ISSUE | REVISION DESCRIPTION | APP
PLAN OF PROPERTY
OWNED BY
SEARS, ROEBUCK AND CO.
BROOKLINE AVENUE & PARK DRIVE
BOSTON, MASSACHUSETTS
GRAPHIC SCALE
(IN FEET)
SCALE: 1" = 40'
DATE: FEB. 13, 1989
RES: OF
FLD: JAK
CHP: RDR
PLT: KT
DWN: JPC
CHK: RDR
PLAN NUMBER: 892017-01-P12 89
SHEET 1 OF 1
I HEREBY CERTIFY TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF THAT THIS PLAN IS BASED ON FIELD SURVEYS, DEEDS AND PLANS OF RECORD AND CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.
Aug 4, 1993
PROFESSIONAL LAND SURVEYOR DATE
CE CULLINAN ENGINEERING CO., INC.
AUBURN, MASSACHUSETTS

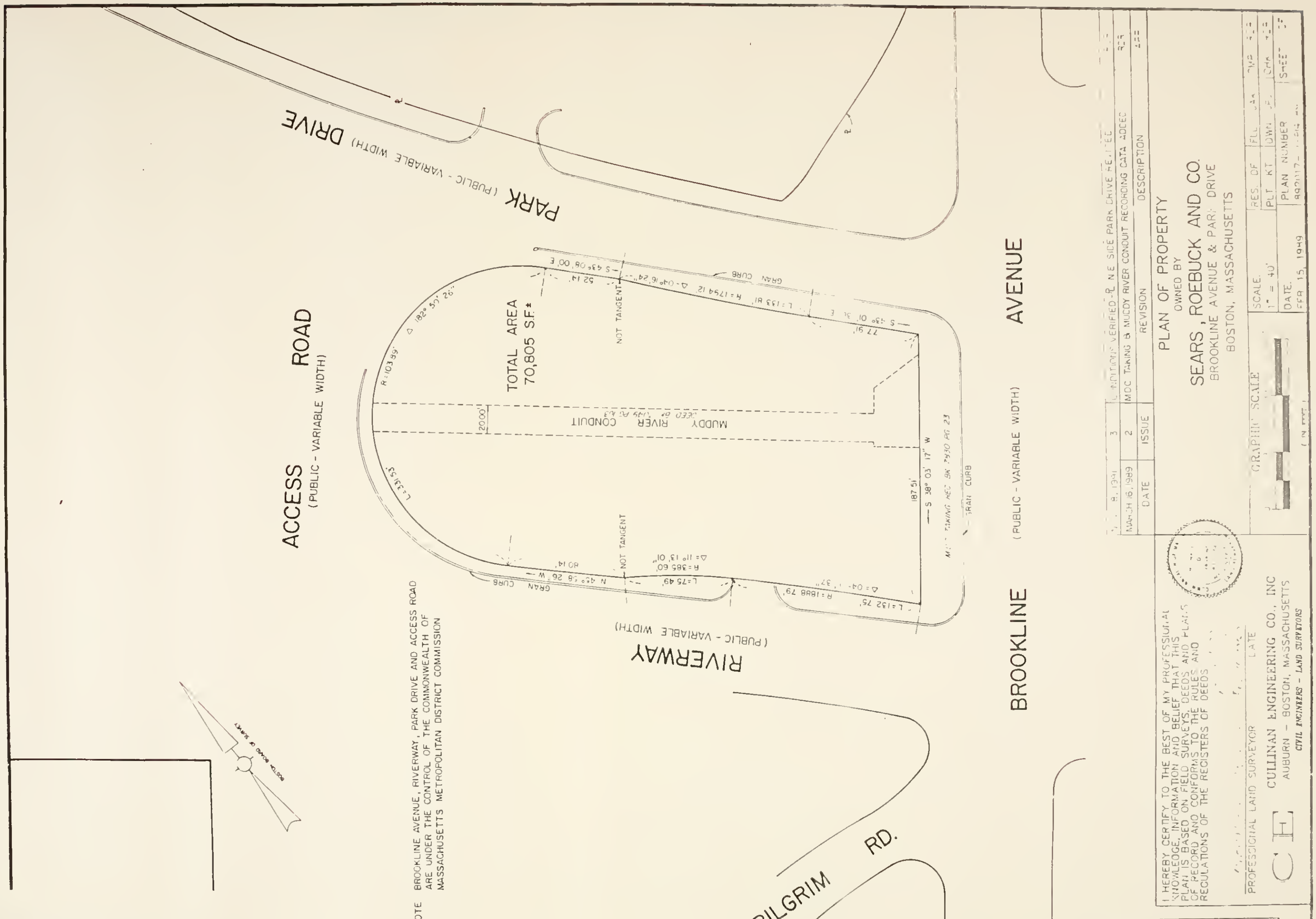
NEW ENGLAND DEVELOPMENT

One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

PLAN OF PROPERTY
Figure 2.2-11


PARK DRIVE
(PUBLIC - VARIABLE WIDTH)
ACCESS ROAD
(PUBLIC - VARIABLE WIDTH)
RIVERWAY
(PUBLIC - VARIABLE WIDTH)
BROOKLINE AVENUE
(PUBLIC - VARIABLE WIDTH)
PILGRIM RD.
TOTAL AREA
70,805 S.F.±
MUDDY RIVER CONDUIT
NOT TANGENT
NOT TANGENT
GRAN. CURB
GRAN. CURB
S 38° 03' 17" W
187.51'
S 43° 08' 00" E
52.14'
L=133.81'
R=1754.12
Δ=04°16'24"
77.91'
R=103.99'
Δ=182°55'26"
L=331.53'
N 45° 58' 26" W
80.14'
R=385.60'
Δ=11°13'01"
L=75.49'
R=1888.79'
L=132.75'
20.00'
NOTE BROOKLINE AVENUE, RIVERWAY, PARK DRIVE AND ACCESS ROAD ARE UNDER THE CONTROL OF THE COMMONWEALTH OF MASSACHUSETTS METROPOLITAN DISTRICT COMMISSION
MARCH 16, 1989
MDC TAKING & MUDDY RIVER CONDUIT RECORDING DATA ADDED
DATE
ISSUE
REVISION
DESCRIPTION
PLAN OF PROPERTY
OWNED BY
SEARS, ROEBUCK AND CO.
BROOKLINE AVENUE & PARK DRIVE
BOSTON, MASSACHUSETTS
GRAPHIC SCALE
SCALE: 1" = 40'
DATE: FEB. 15, 1949
PLAN NUMBER
SHEET
I HEREBY CERTIFY TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF THAT THIS PLAN IS BASED ON FIELD SURVEYS, DEEDS AND PLANS OF RECORD AND CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS
PROFESSIONAL LAND SURVEYOR
DATE
CULLINAN ENGINEERING CO., INC
AUBURN - BOSTON, MASSACHUSETTS
CIVIL ENGINEERS - LAND SURVEYORS

PLAN OF PROPERTY
Figure 2.2-12

3.0 TRANSPORTATION ISSUES

The conclusion of the analysis is that the weekday morning peak hour is virtually unaffected by the project. The Saturday peak hour is not critical because overall volumes are almost thirty percent lower than the evening peak hour which has emerged as the critical time period for this analysis. The trip generation data shows that the current project will generate about the same volume of traffic during the weekday evening peak hour as the previous project. Thus, while the technical analysis includes an evaluation of all the peak hours, the discussion generally concentrates on the weekday evening peak hour which is the most relevant for the project.

Insofar as mitigation is concerned, the report identifies several mitigation measures, many of which were originally identified in the PIR/EIR. In some cases where the PIR/EIR proposed mitigation the SPIR/NPC does not, because the project's impacts are minimal at those locations or because other arrangements have been made already. On a per square foot basis and on the basis of overall trip generation, the Fenway Plaza project proposes a mitigation package that is greater on a square foot and per trip basis than the previous project.

3.2 Existing Traffic Operations

Traffic Study Area

Prior to collecting data for this SPIR/NPC, the study area for the PIR/EIR was evaluated and discussions were held with the BTD. The PIR/EIR studied a total of twenty-six intersections, extending from the Charlesgate Interchange area to the B.U. Bridge, south to Ruggles Street/Huntington Avenue intersection. Figure 3-1 is a map showing the site in relation to the surrounding roadway network.

In reviewing the PIR/EIR intersection analysis, it became apparent that several intersections did not need to be redone. This was the case because: 1) no mitigation was needed under the Olmsted Plaza concept and the Fenway Plaza plan did not materially change the situation, and 2) in many cases, proposed signal retiming would bring the intersection to an acceptable Level of Service under the Build condition. The proponent will provide any such signal timing as part of the Fenway Plaza mitigation package.

It should be noted that the weekday morning peak hour trip generation for Fenway Plaza is much less that what was originally projected for Olmsted Plaza, while the weekday evening peak hour volumes for the previous and current proposals are similar. Some of the locations that were not re-evaluated were of concern during the morning but operated reasonably during the evening even under the Olmsted Plaza Build condition.

Figure 3-2 shows the intersections originally studied for the Olmsted Plaza project (taken from the PIR/EIR) and Figure 3-3 shows a list of the intersections that have been omitted for this analysis and the reasons for omitting them. The BTD prepared a list of locations as part of the BRA Scoping Determination for this SPIR/NPC which included thirteen of the original twenty-six locations. Based on subsequent discussions and the consultant's judgment, two additional locations were also re-evaluated. The net result is that of the twenty-six original intersections, fifteen were reanalyzed, including all those in the immediate area surrounding the project.

Existing Traffic Volumes

New traffic counts were made in 1994 at each of the intersections included in the SPIR/NPC reanalysis for the weekday morning peak hour, the weekday evening peak hour, and the Saturday peak hour. This information is shown in Figures 3-4, 3-5, and 3-6. The count data is included in Appendix 3.0. Estimated Average Daily Traffic (ADT) volumes for Existing conditions are also included in Appendix 3.0.

Existing Traffic Operations

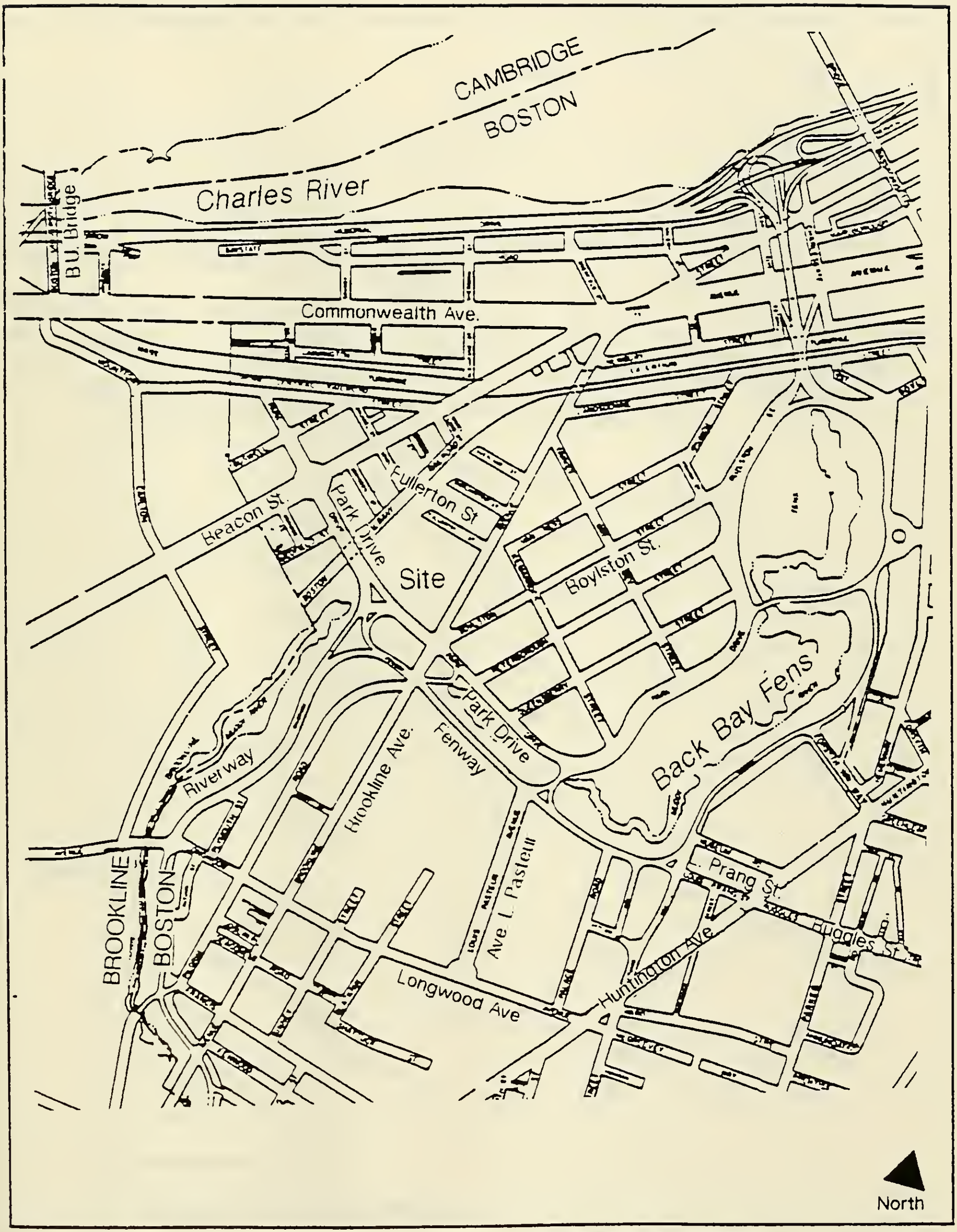
Operating conditions under Existing conditions are shown in the section on Intersection Analysis for each of the three peak hours evaluated. There is a separate table for each peak hour showing Level of Service for Existing, No Build, and Build conditions as well as the Build Condition with Mitigation where mitigation is proposed (Figures 3-24, 3-25, and 3-26). The Intersection Analysis discusses each of the intersections in terms of Existing, No Build, and Build Levels of Service.

Accident History

The Olmsted Plaza PIR/EIR contained information for a three-year period for each of the intersections studied. The report then went on to develop an index combining accident frequency and accident severity to provide a rank for each of the intersections in terms of safety. No conclusions were drawn from that analysis.

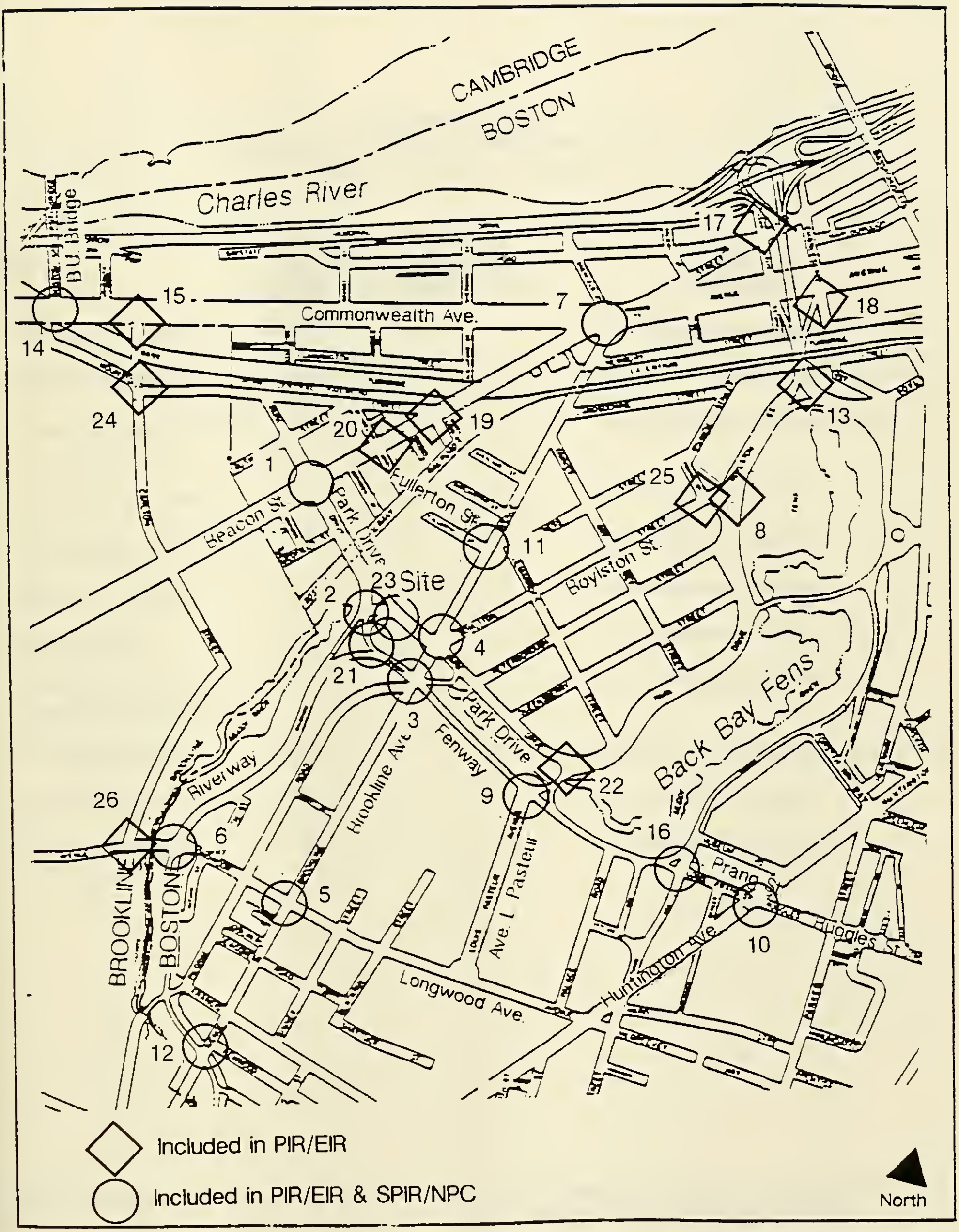
Review of the data contained in the PIE/EIR showed that during the three-year study period, there were no fatal accidents at any of the intersections for which data was available. No major operating or geometric changes have occurred at any of the intersections studied since the completion of the PIR/EIR and there have been no significant changes in traffic volumes either during this time. Therefore, the accident experience reported in the PIR/EIR is representative of Existing conditions.

Although no further accident analysis has been prepared, traffic safety is an important element which is not ignored in this SPIR/NPC. At any location where modifications are proposed in terms of operating conditions or geometric design, attention has been given to creating conditions that are at least equal to or better than existing conditions insofar as traffic safety is concerned. In particular, the section on pedestrian circulation pays particular attention to safety issues.



General Location Map

Figure 3-1



Study Area Intersections

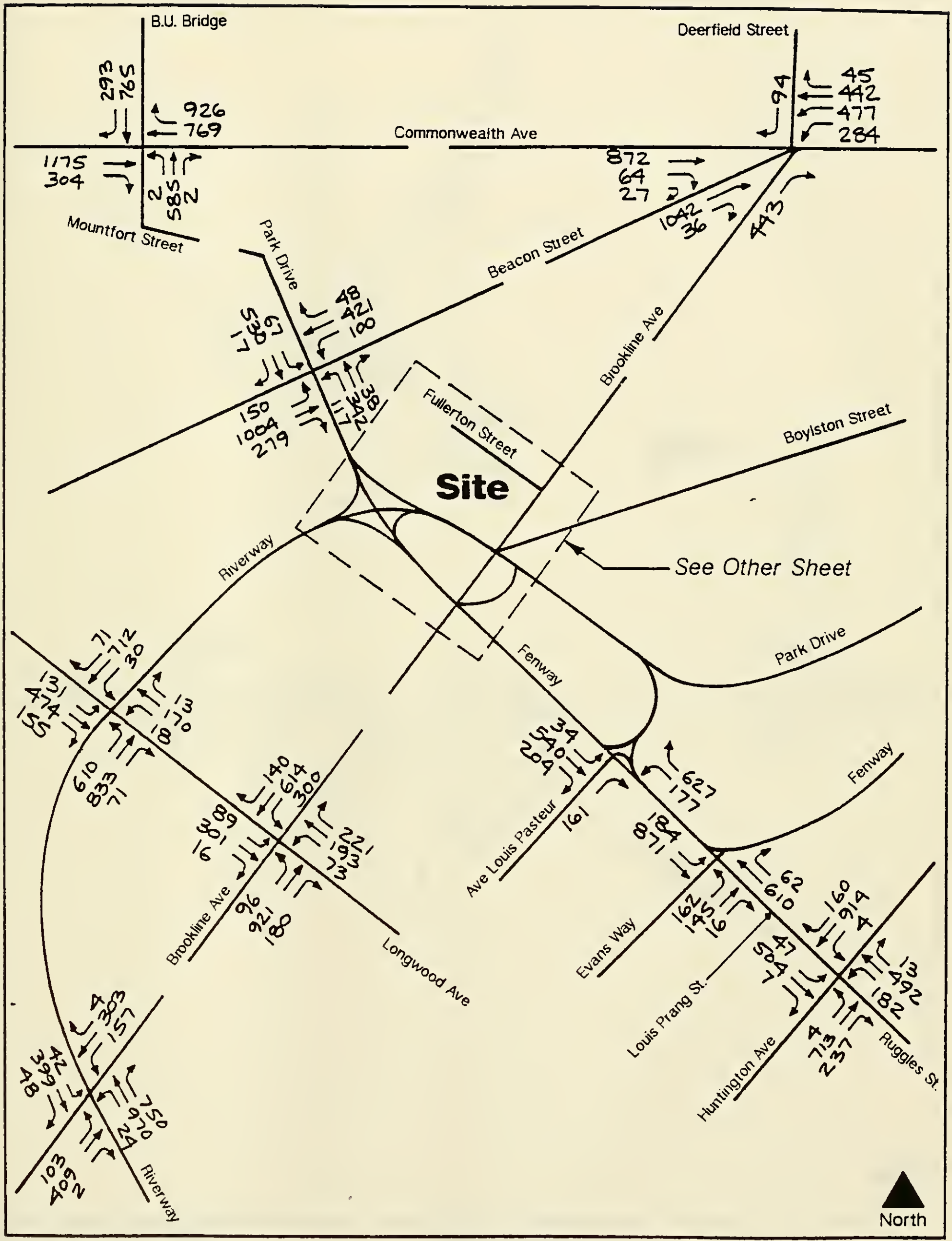
Figure 3-2

FENWAY PLAZA
Reasons for Omitting Certain Intersections from Fenway Plaza Analysis

Location #		Olmsted Plaza EIR PM LOS w/o Mitigation Existing	No Build	Build	Reason for Omitting
8	Boylston/Park Drive	A	A	A	No mitigation needed.
13	Park Drive/Fenway	C	D	F	Signal re-timing brings LOS to C.
15	Commonwealth Avenue/ Carlton	F	F	F	Signal re-timing brings LOS to D.
17	Charlesgate W/Beacon	B	C	C	No mitigation needed.
18	Charlesgate E/Beacon	C	C	C	No mitigation needed.
19	Beacon/Maitland	A	A	A	No mitigation needed.
20	Beacon/Miner	A	A	A	No mitigation needed.
22	Park Drive/ Ave. Louis Pasteur	C	C	C	No mitigation needed
24	Carlton/Mountfort	F	F	F	Signal re-timing brings LOS to C.
25	Boylston/Ipswich	B	B	C	No mitigation needed.
26	Longwood/Chapel (Brookline)	B	B	B	No mitigation required.

List of Intersections Not Re-Analyzed

Figure 3-3



Schematic: Not to Scale

1994 Existing
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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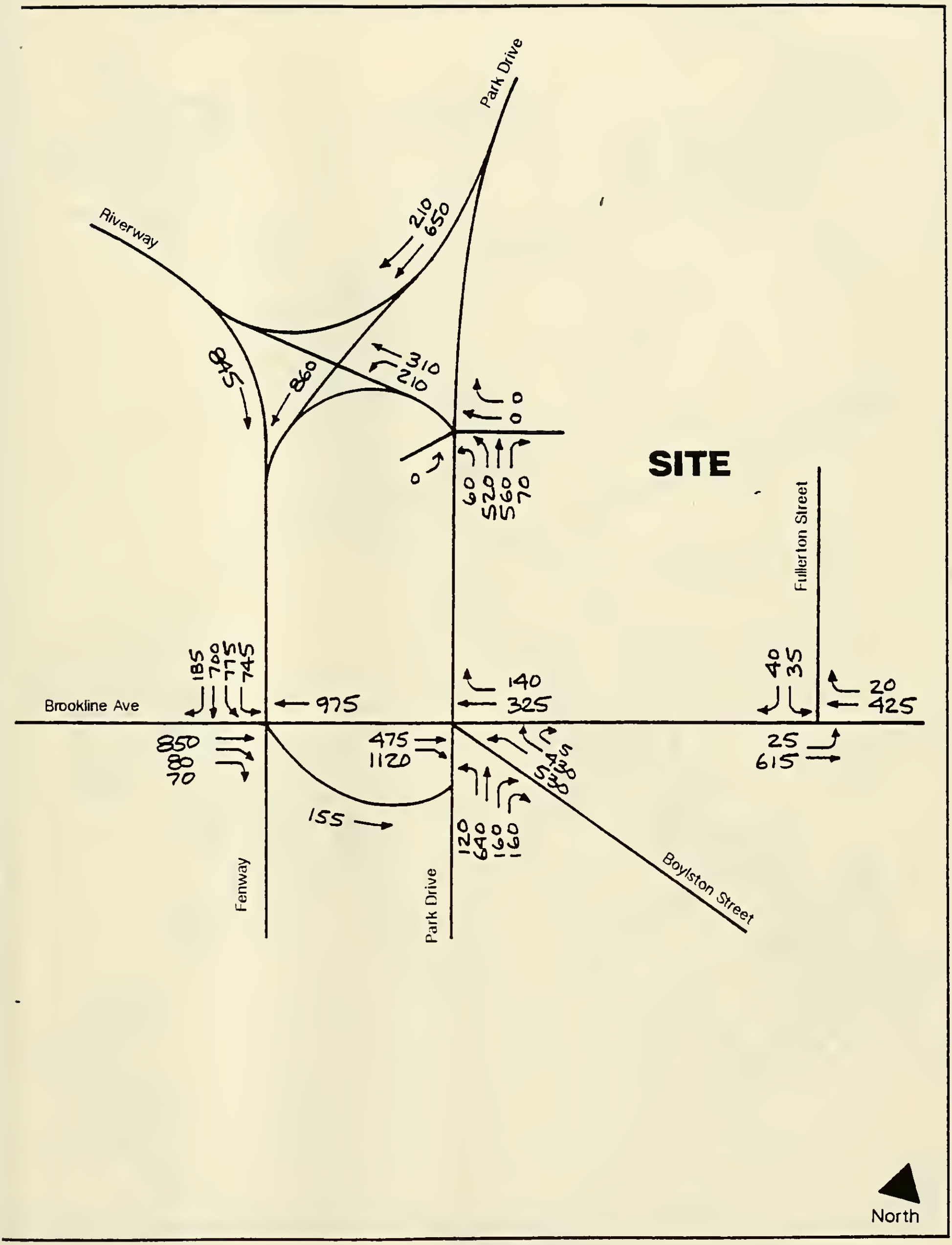
Figure 3-4A



Schematic : Not to Scale

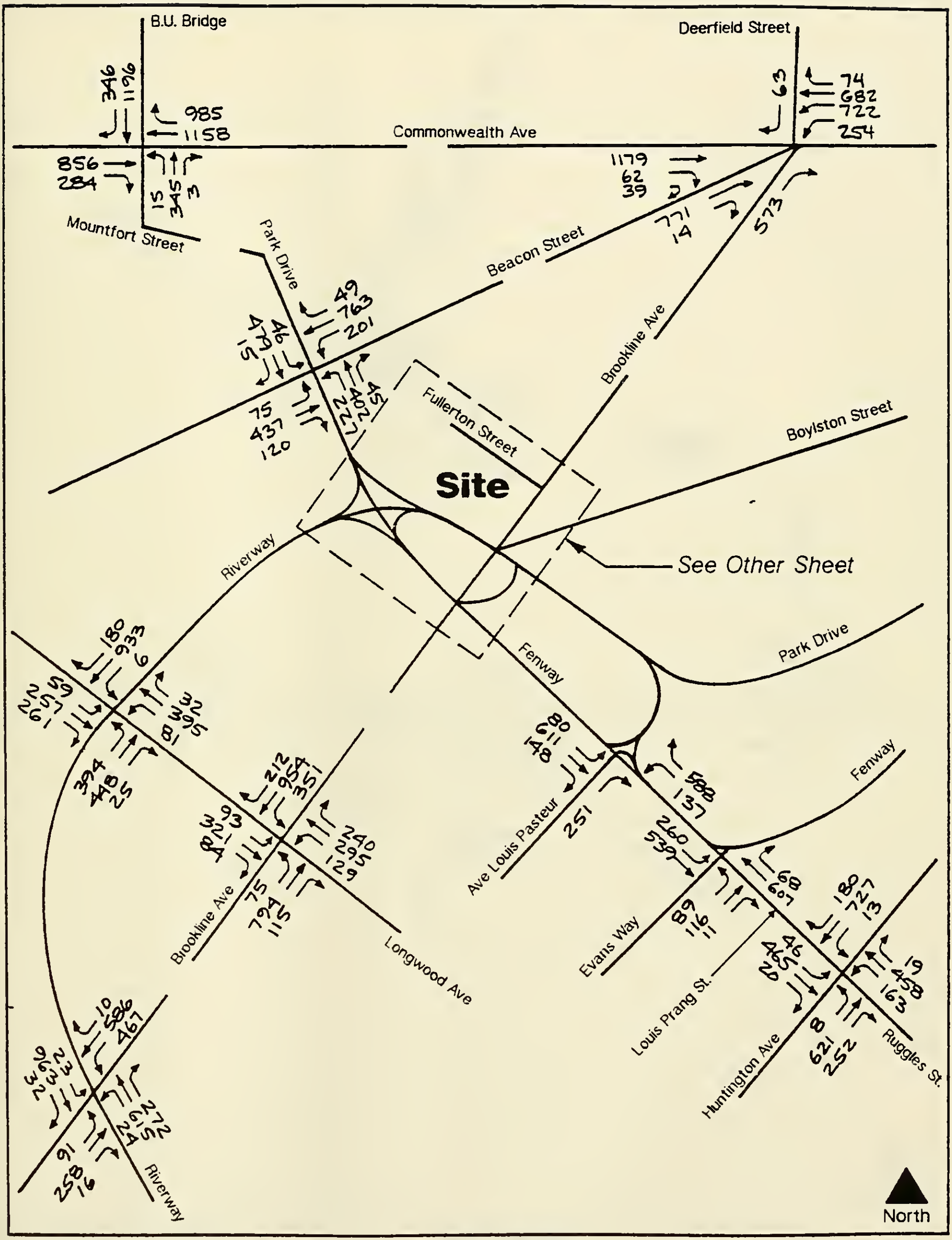
1994 Existing
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

Figure 3-4B



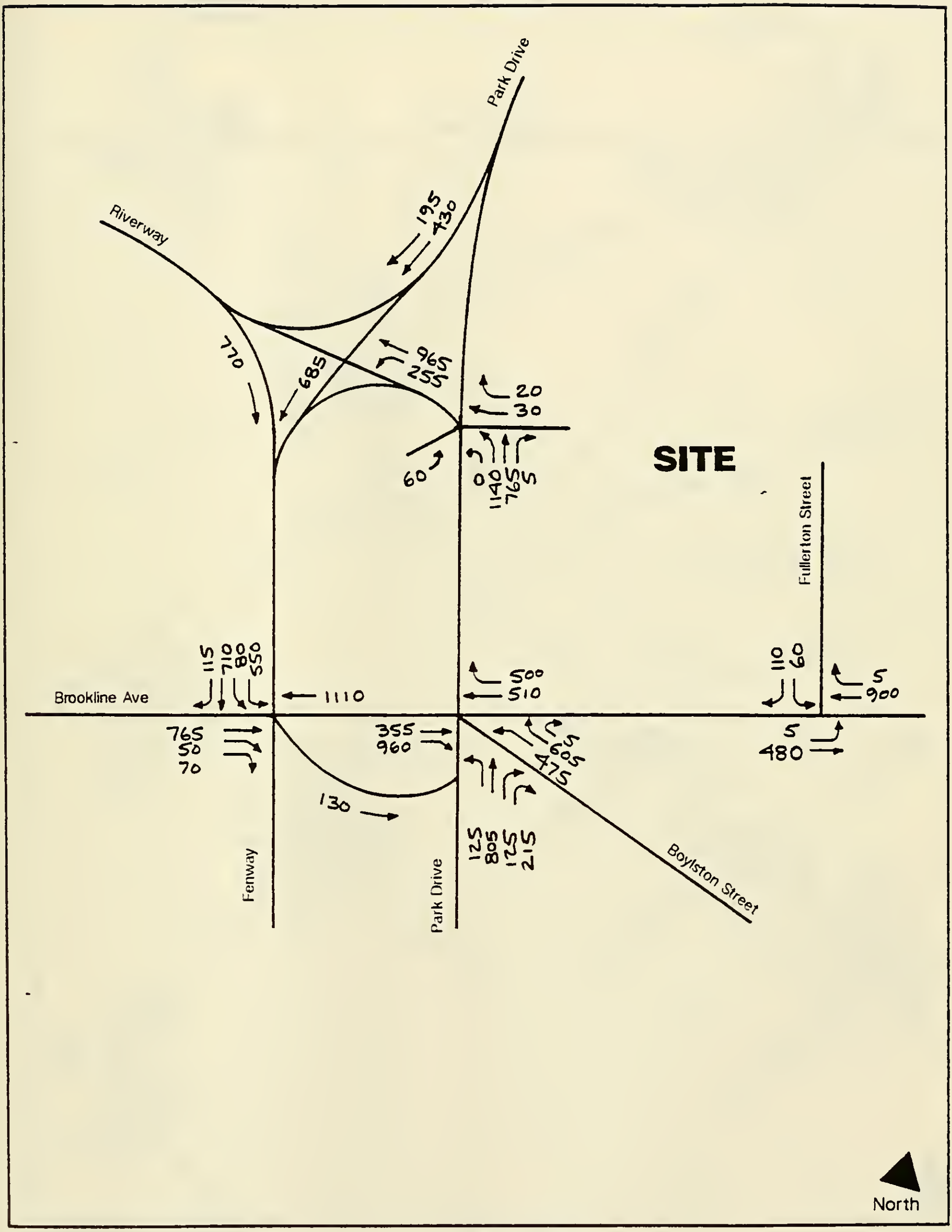
Schematic: Not to Scale

1994 Existing
Weekday PM Peak Hour Volumes

NEW ENGLAND
DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
A project of New England Development

Figure 3-5A



Schematic : Not to Scale

1994 Existing
Weekday PM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

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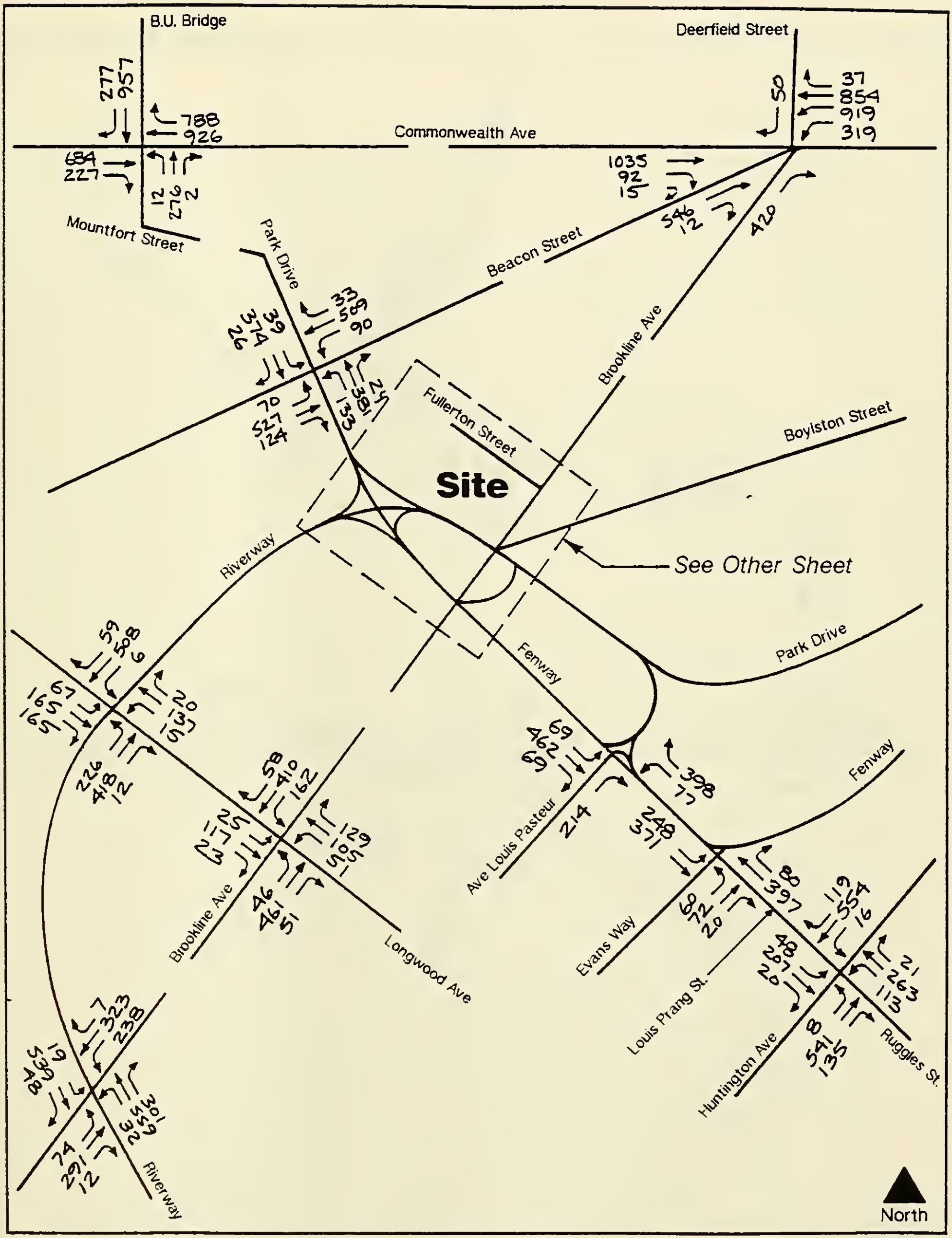
Figure 3-5B



Schematic: Not to Scale

1994 Existing
Saturday Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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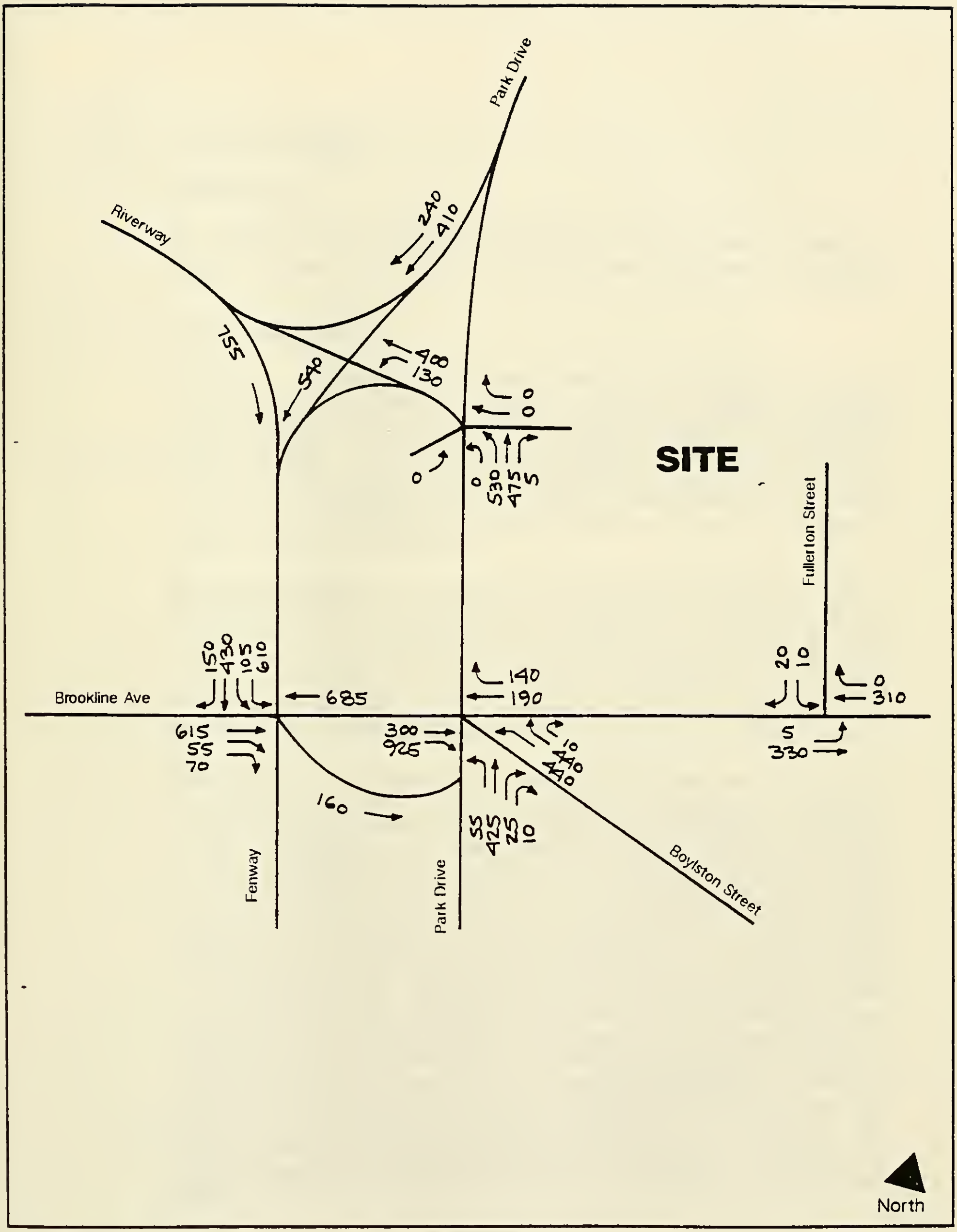
Figure 3-6A



Schematic : Not to Scale

1994 Existing
Saturday Peak Hour Volumes

NEW ENGLAND
DEVELOPMENT
One Wells Avenue
Newton, MA 02159

3.3 No Build Conditions

Design Year

The design year evaluated in this SPIR/NPC is 1999, which is based on a five-year horizon from the year in which the base traffic data was collected (1994).

Background Growth

General -- In projecting the 1999 No Build condition for this analysis, information was collected from recent submissions to MEPA as well as from discussions with MASCO. The most recent project filing in this area was on February 15, 1994 by the New England Deaconess Hospital for a research facility. The filing was an FPIR/FEIR (EOEA #8776). Page IV-21 of that report presented a list of projects. This project list, as well as discussions with BTD and MASCO, served as a basis for estimating background growth in this area.

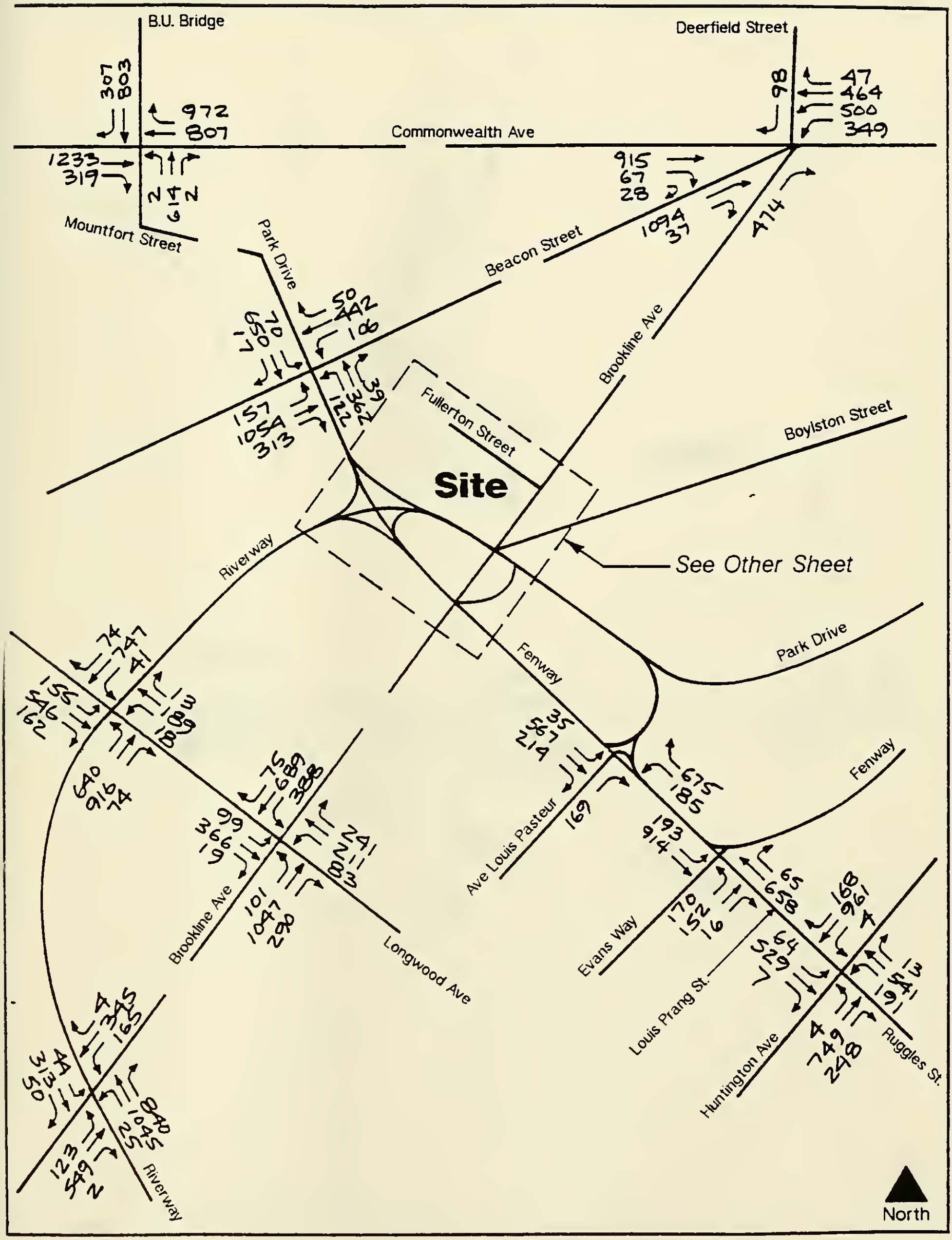
Background Growth -- A review of the information on background growth provided in recent reports, indicated that the growth rate has slowed significantly since the Olmsted Plaza PIR/EIR was completed in 1989. Traffic growth projections used in other recent reports have been on the order of one percent per year. This has been applied to the existing volumes in the study area for this analysis as well. A total increase of five percent has been incorporated for the five year period from 1994 to 1999.

Site-Specific -- In addition to general traffic growth, site-specific traffic has been added for several projects including the following: Brigham & Women's Hospital/Center for Women and Newborns (203,000 square feet), Harvard Community Health Plan's (HCHP) proposed 156,000 square foot facility along Boylston Street, the Dana-Farber Research Facility (238,000 square feet), the Harvard Institute of Medicine/English High School Biomedical Research facility (294,000 square feet), Beth Israel Hospital/Mass. College of Art (385,000 square feet); and the Mass. College of Pharmacy and Allied Health Sciences/Research and Academic facility (172,000 square feet). Other proposed projects in the vicinity of this project (such as the Joslin Diabetes Center and the New England Deaconess Hospital Clinical Facility) projected increases that were expected to be insignificant due to several factors, including expansion to accommodate overcrowding, the provision of no new parking within the study area for these projects, and the fact that some of these traffic increases were not going to be occurring during normal peak hours. In addition, the Children's Hospital Blackfan Garage will also be rebuilt. However, this will not increase traffic within the area but is a replacement for the existing facility.

Each of the above projects that have been incorporated into background growth will generate traffic during the morning and afternoon peak periods, and this traffic has been added to the network. Increases associated with this background development for the Saturday afternoon peak retail period, however, is incorporated as part of the five percent for the five-year horizon, since these generators are not generally operating on Saturdays.

No Build Volumes -- Figures 3-7, 3-8, and 3-9 show the projected No Build volumes for the year 1999 for the weekday morning, weekday evening, and Saturday peak hours. These consist of Existing Volumes, plus general background traffic growth and site-specific traffic growth over the next five years. These traffic volumes represent what is expected to occur in the target year without the Fenway Plaza project.

Levels of Service for No Build conditions at each intersection have been calculated and are shown in the section on Intersection Analysis where they can be compared directly to Existing and Build conditions.



Schematic: Not to Scale

1999 No Build
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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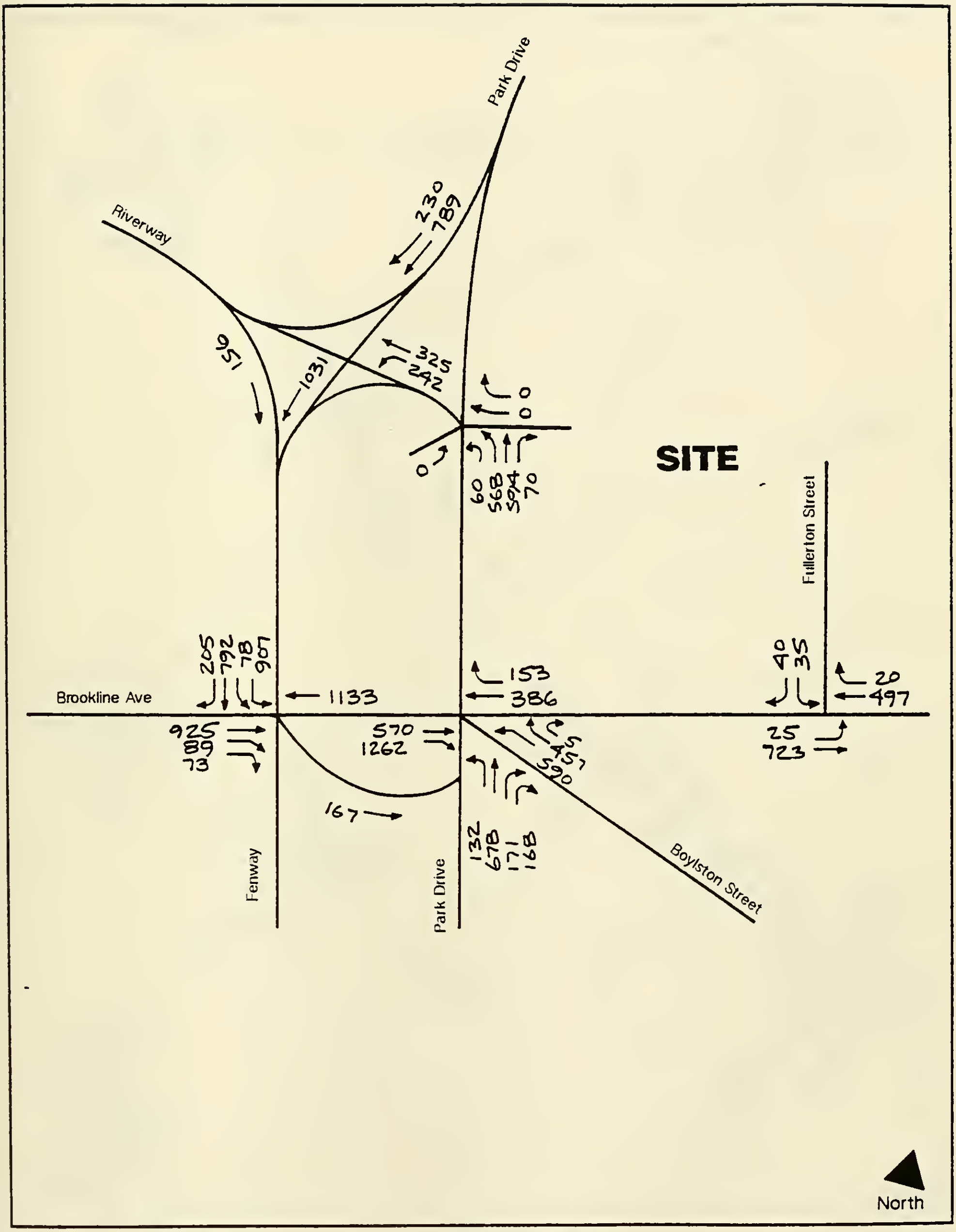
Figure 3-7A



Schematic : Not to Scale

1999 No Build
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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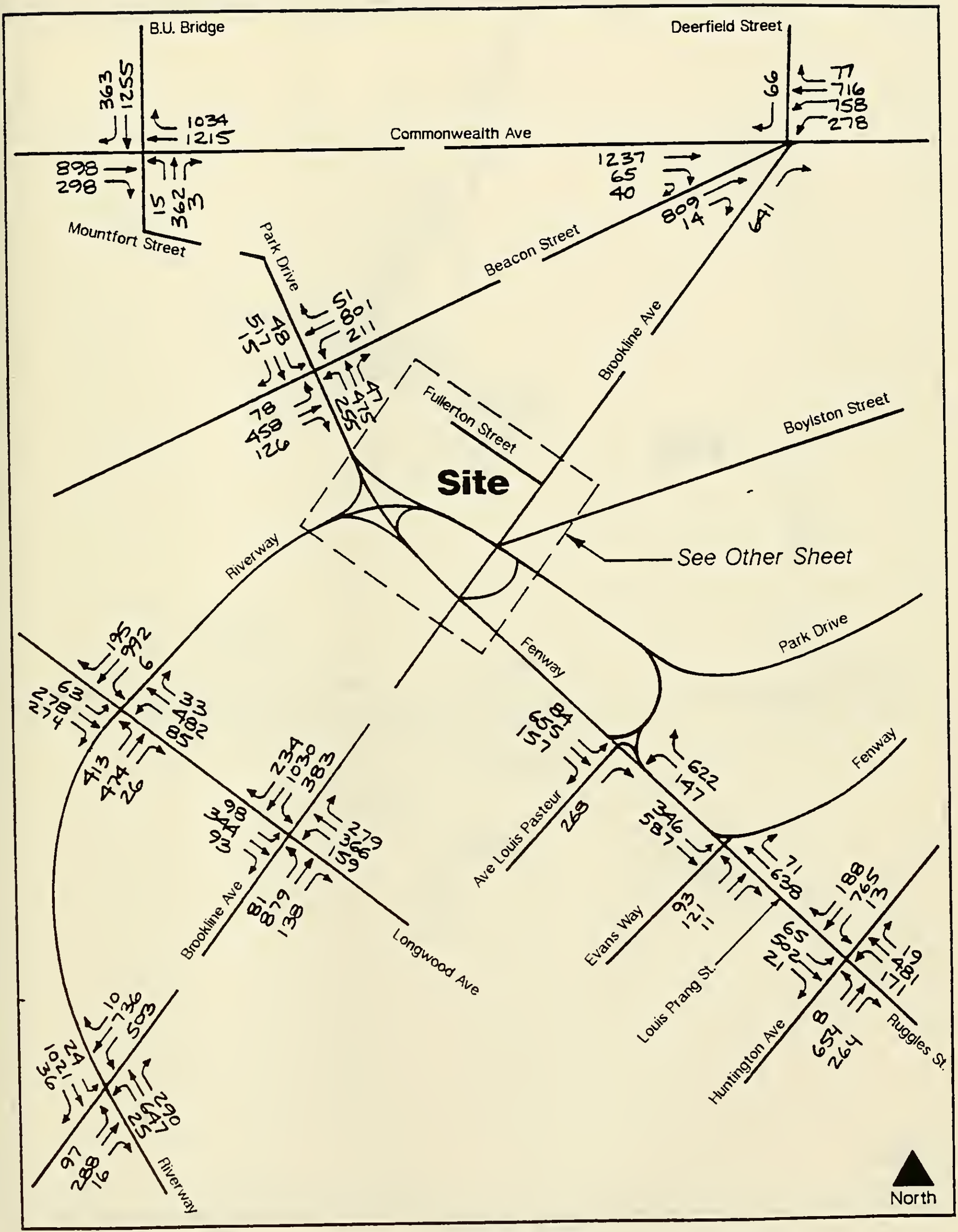
Figure 3-7B



Schematic: Not to Scale

1999 No Build
Weekday PM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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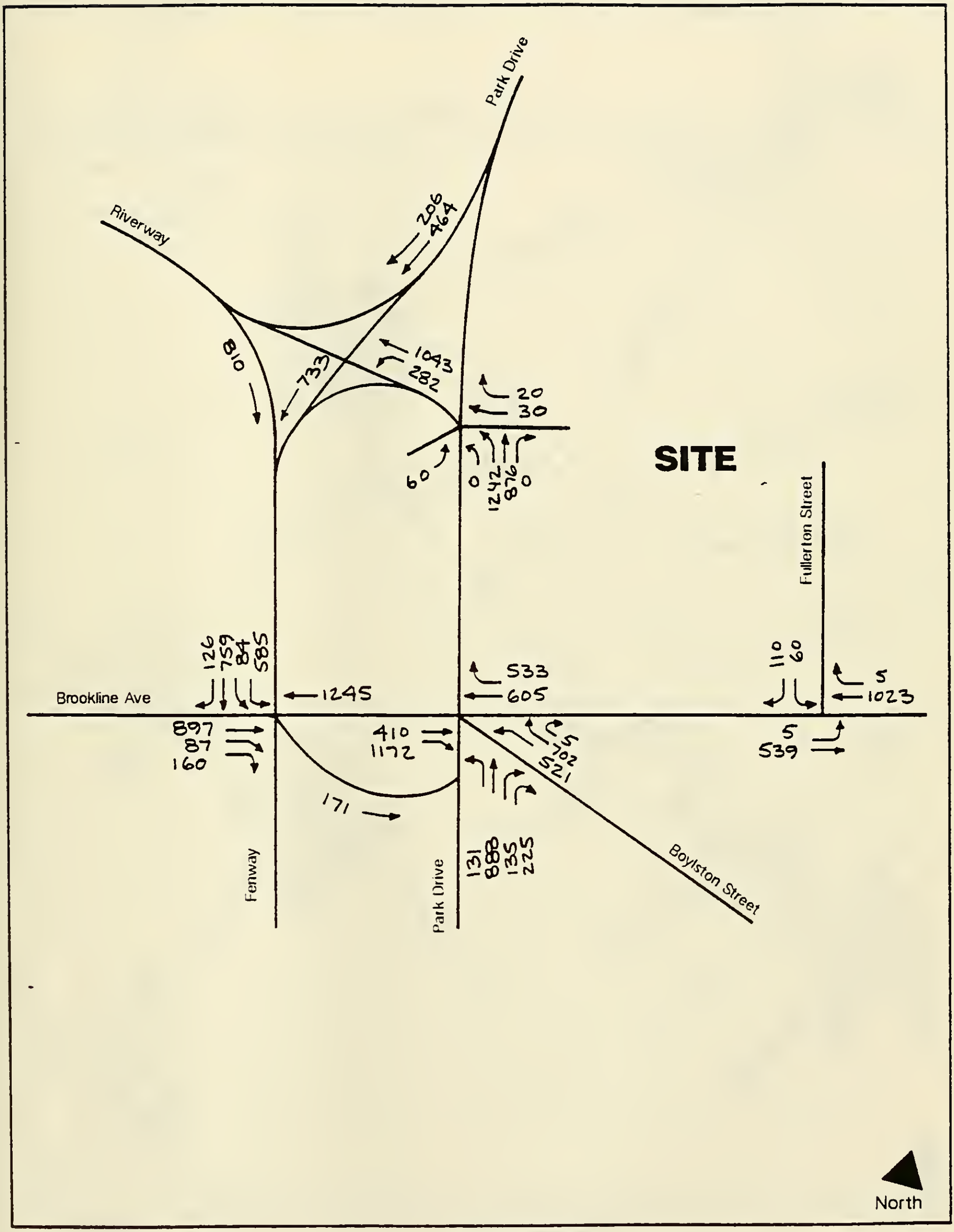
Figure 3-8A



Schematic : Not to Scale

1999 No Build
Weekday PM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

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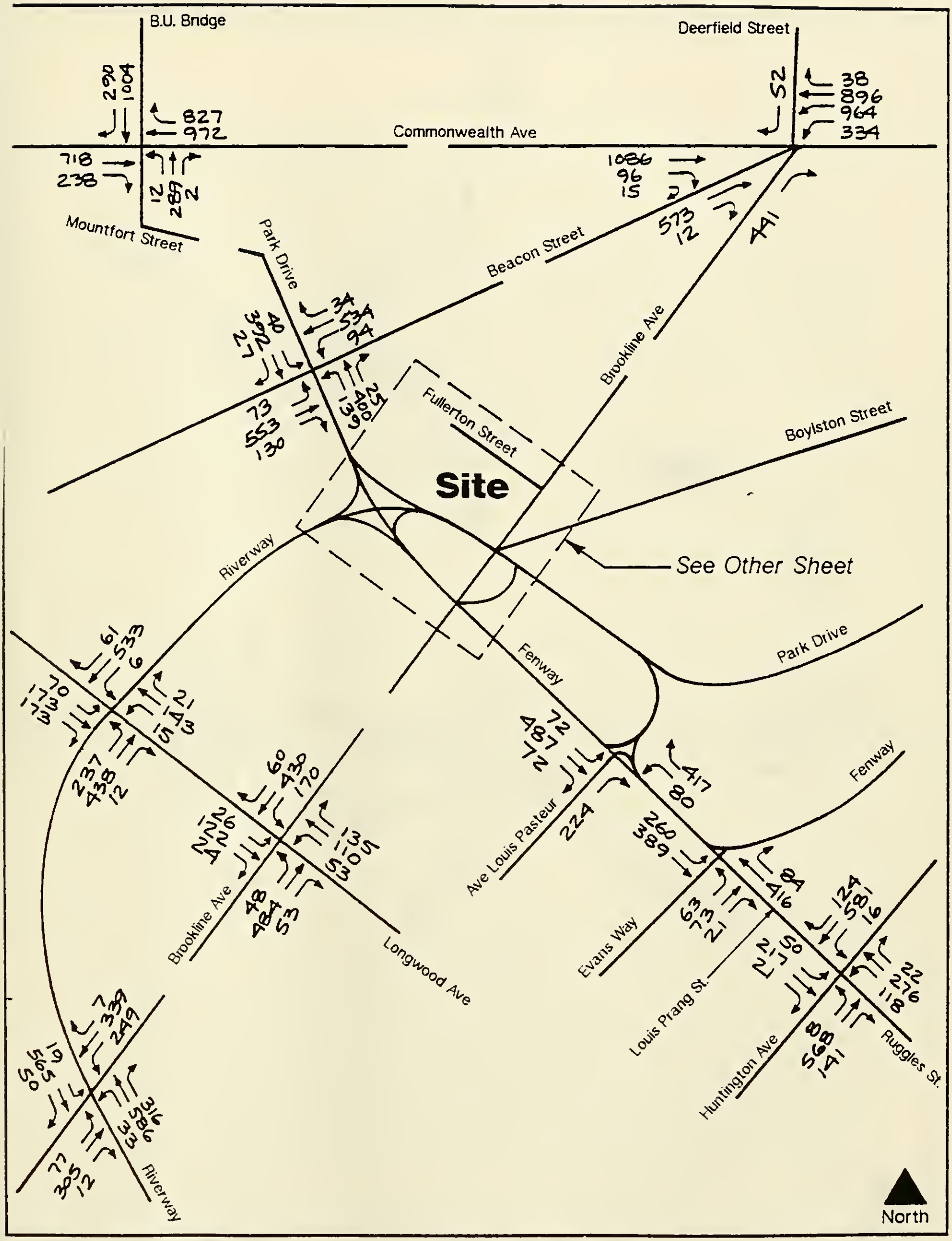
Figure 3-8B



Schematic: Not to Scale

1999 No Build
Saturday Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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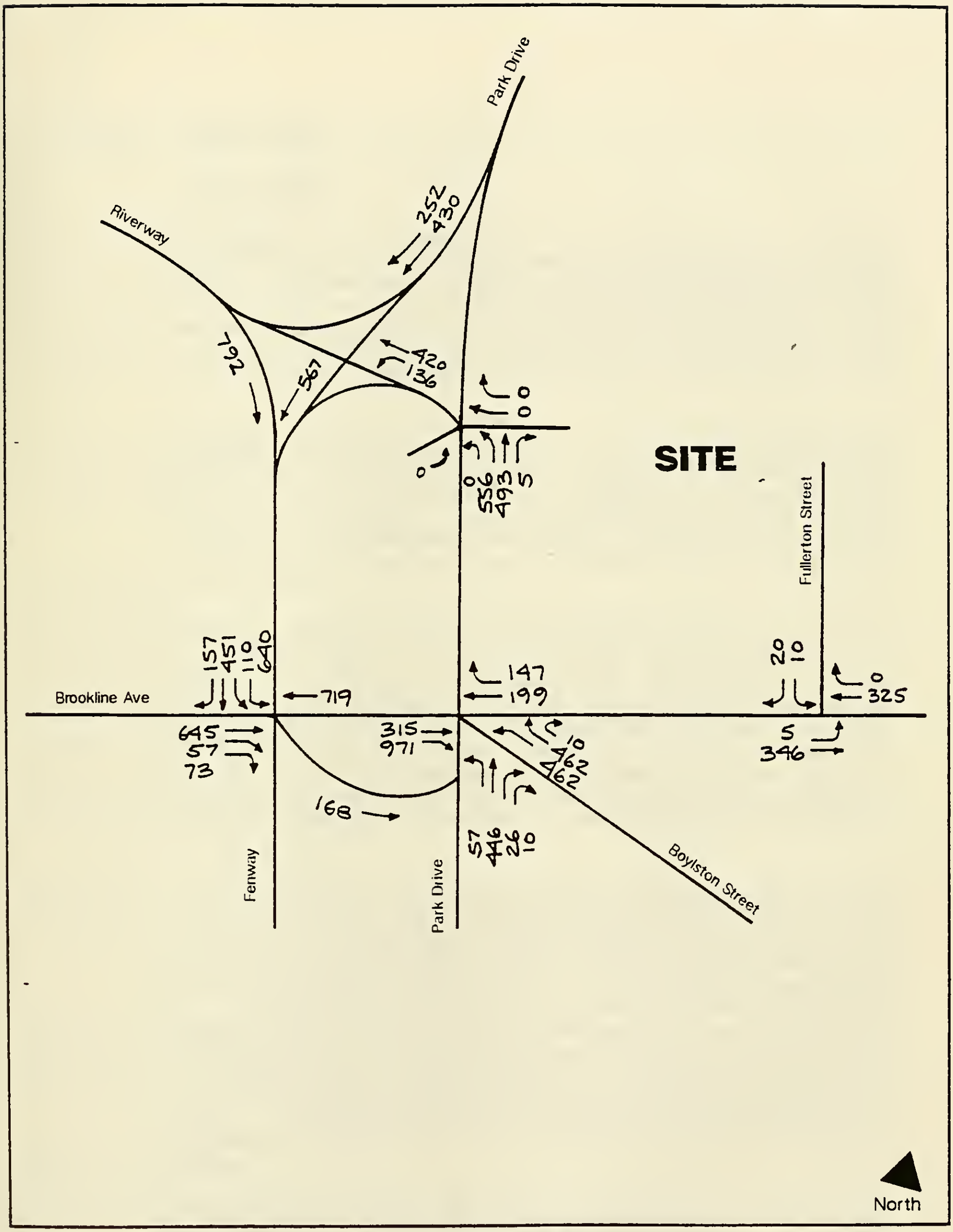
Figure 3-9A



Schematic : Not to Scale

1999 No Build
Saturday Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

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Figure 3-9B

3.4 Project Traffic

Trip Generation

Introduction -- The proposed project is somewhat unique in the Boston area in that it is similar to a shopping mall that may be found in the suburbs where a supermarket would be one of several anchors within a larger retail complex. However, there is no specific published trip generation source data available to project trips to this kind of use at an urban site either in the Institute of Transportation Engineers (ITE) Trip Generation, fifth edition, published in 1991, or from local sources.

The primary source of trip generation data, ITE, has information on shopping centers and supermarkets (Land Use Codes 820 and 850, respectively). All of this information has been collected from suburban centers, in areas where dependence on an automobile is necessary for the vast majority of trips. This is very different from the Fenway neighborhood where this project will be sited. Therefore, it was necessary to find information from other sources on which trip generation projections could be based.

Typically, urban projects focus on the modal split of customers and workers at a site. Total person-trips are estimated and then assigned to the three primary modes of travel: automobile, transit, and walking. This modal split is based on information collected from other urban locations and adjusted to the specific project and location, as appropriate. The modal split is usually dependent on the proximity of the site to bus and transit lines, the convenience of driving to and from the site, and the amount of potential walk-in trade. This approach has been used in Boston primarily for the downtown, where information on modal split has been collected and is readily available.

For this location and use -- a pure retail project well beyond the downtown -- other sources for trip generation information have been pursued. Two locations that provide information related to each of the two primary uses of the site are the CambridgeSide Galleria in East Cambridge and the Star Market supermarket on Boylston Street, a block from the Fenway Plaza site. The CambridgeSide Galleria is a 664,000 square foot regional shopping mall with a typical suburban configuration of anchor tenants and smaller mall stores in between. (In all cases of retail development, square foot figures refer to gross leasable area.) The Star Market (approximately 34,000 sf) currently serves this neighborhood and has available on-site parking. The configuration for this project will be similar to CambridgeSide Galleria, but the mix and type of stores is somewhat different.

Fenway Plaza will include a 390,000 square foot mall and a 60,000 square foot Supermarket. Since a modal split analysis would have required making a number of assumptions to adjust for the proposed land use and location, the use of empirical data from CambridgeSide Galleria and the nearby Star Market is better suited to this project. This methodology has been discussed with BTD. Data on trip generation is included in Appendix 3.0.

Mall Stores -- The CambridgeSide Galleria in East Cambridge has been used as a model for the mall portion of the project. In addition to being a comparable use, the setting is also similar. The East Cambridge neighborhood, although not as dense as the Fenway area, is comparable to the Fenway neighborhood in regard to its proximity to transit access, bus routes, and its geographical relationship to downtown Boston. Therefore, it has been used as the source for information on mall-related vehicle trips in an urban setting.

Recent information on trips at CambridgeSide Galleria was obtained from the mall management which keeps a record of all vehicles using the site's garage. CambridgeSide Galleria is representative of the proposed Fenway Plaza in that all of its parking supply is within a garage that is directly connected to the retail area.

Applying the ITE equations to the 664,000 square foot CambridgeSide Galleria results in a projection of 2,205 vehicle trips during the evening peak hour. Actual data from CambridgeSide Galleria, however, shows that there were 620 vehicle trips during the weekday evening peak hour of an average day. Applying the ITE equations to the 390,000 square feet of mall stores within the proposed project results in an ITE projection of 1,562 vehicle trips during the evening peak hour. Adjusting this volume by the CambridgeSide Galleria ratio results in a vehicle trip projection of 437 vehicles (in and out combined) for the Fenway Plaza mall stores during the weekday evening peak hour. Using the same ratio, the Saturday peak hour volumes are projected to be 591 vehicle trips. Figure 3-10 presents these calculations.

(When the traffic study for CambridgeSide Galleria was made, vehicle trip generation was assumed to be 50 percent of the ITE projected volumes for a retail development of that size and type (ITE land use #820). That projection turned out to be 60 percent higher than what has actually occurred.)

Supermarket -- Information was collected in April 1993 by the BTD regarding vehicle occupancy and vehicle trips at the Star Market on Boylston Street. The Star Market supermarket is approximately 34,000 square feet and is located within the neighborhood that will be served by the project.

Applying the ITE rates for a supermarket of this size (Land Use Code 850) to this square footage results in a projection of 418 vehicle trips during the weekday evening peak hour. However, the number of observed trips at the Star Market was 241. Applying the ITE rates to the 60,000 square feet of the proposed supermarket gives a projection of 718 vehicle trip during the weekday evening peak hour. Adjusting this value by the Star Market ratio results in 416 vehicle trips projected for the supermarket at Fenway Plaza. Using the same ratio, the Saturday peak hour volumes are projected to be 534 vehicle trips. Figure 3-10 presents these calculations.

Total Retail Trips -- Combining these two components produces a total of 853 weekday evening peak hour vehicle trips and 1,125 Saturday peak hour vehicle trips for the combined total of 450,000 square feet of retail area. These projections assume that the supermarket and the mall are each stand-alone projects when, in reality, they will not be. They will not only share parking but will also be connected to each other in typical mall fashion. Therefore, an adjustment has been made to account for this overlap between uses.

Discussions with planning professionals as well as estimates based on ITE information indicate a reduction of ten percent can be applied to the total of both uses to account for this overlap. Therefore, the total evening peak hour trips are projected to be 768 vehicles. (Figure 3-10 presents these calculations). Following the same logic for the Saturday peak hour results in total retail site trips of 1,013 vehicle trips. In both cases, the distribution is estimated at 50 percent inbound and 50 percent outbound. No retail trips are projected for the morning peak hour, although there will probably be a few incidental trips.

In sum, the 450,000 square feet of retail area is projected to generate 768 trips during the weekday evening peak hour and 1,013 vehicle trips during the Saturday peak hour. This represents forty-five percent of what ITE would project for a 450,000 square foot suburban shopping center.

Pass-by Trips -- The effect of pass-by trips has also been considered. While the site is not likely to produce as high a volume of such trips as a site adjacent to or in the midst of a "Route 9" type of retail area, it is located at the confluence of several major streets and experiences a large volume of traffic going past the site, some of which will enter the site. Another reason why pass-by trips are expected here is because of the supermarket. Observations at the Star Market on Boylston Street found many weekday evening peak hour customers in business attire, apparently stopping to shop on their way home. A pass-by rate of 15 percent has been assumed for all retail trips.

Truck Trips -- Truck trips will be generated by both the supermarket and the mall. Most of these truck trips will arrive during the middle part of the day when stores are open and there are personnel on-site to accept and store incoming goods.

Most truck deliveries will be made by small- and medium-size trucks belonging to local wholesalers and delivery companies such as UPS. However, there will be some large trailer truck deliveries to both the supermarket and other stores.

Truck trip generation for the supermarket is based on a survey done for the Stop & Shop supermarket proposed on Memorial Drive in Cambridge. That data is based on trips to the existing supermarket at that site. Truck deliveries to the remaining stores are based on information obtained from the CambridgeSide Galleria management.

The table below shows the projected truck trips to the site based on the above sources.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
All Trucks						
Supermarket	27	27	16	24	25	16
Other Stores	70	70	70	70	70	35
Heavy Trucks Only (included in all trucks)						
Supermarket	6	6	4	6	6	4
Other Stores	17	17	17	17	17	5

Most of the truck trips servicing the site will not be exclusive to the site but will consist of trucks belonging to trucking companies that will stop at Fenway Plaza as one stop of a multi-stop delivery route. Even direct suppliers will be servicing the site with trucks that will be making other stops.

The BTD and the proponent will agree to the hours during which deliveries can be made as part of the Transportation Access Plan agreement.

Monthly Parker Trips -- The monthly parking component of the project will consist of 1,030 spaces to be leased on a monthly basis by people who work in the area. These spaces will generally fill up in the morning and empty in the evening. (Vehicle trips to the parking spaces dedicated to the retail portion of the project are already accounted for in the retail vehicle trip projections above. This section considers only the trips to the monthly spaces of the project.)

The number of trips into and out of the monthly spaces during the peak hours has been estimated based on the counted volumes into and out of the parking lots that currently occupy the site. While these lots are licensed for a total of 569 spaces (301 on the Sears site and 268 within the "missing link" rotary) they have a combined capacity of about 700 spaces. Nevertheless, in order to be conservative, trip generation has been based on the licensed supply.

Not all parkers arrive or depart during a single peak hour and numerous spaces were already occupied prior to 7:00 AM when the counts began. Traffic counts were conducted at these two lots in February 1994. During the morning peak hour there were a total of 143 inbound trips; during the afternoon there was a peak hour flow of 124 vehicles. Outbound trips during the morning and inbound trips during the evening were negligible.

Figure 3-11 shows the projected weekday morning and evening peak hour monthly parker trips. During the morning peak hour 260 vehicles will be entering the monthly parking area; during the evening peak hour 225 vehicles will be leaving the monthly parking area. Observations and counts at the existing lots showed that there is significant parking activity both before and after the peak hour. For example, at the rotary lot, there were 140 vehicles parked before 7:00 AM. Most of these vehicles also left before the evening peak hour based on field observations.

One important aspect of the monthly parker component is that there is, as counted, 143 inbound morning trips and 124 outbound evening trips related to the existing parking lots. These existing trips have been accounted for in the projections of net new trips in this analysis. Thus, morning monthly parkers will increase by 117 to a total of 260 trips, while evening monthly parkers will add 101 trips out of a total of 225 trips to the roadway network.

Vehicle Trip Distribution

Retail Trips -- The distribution of retail vehicle trips is based on discussions with market analysts for the proponent and an evaluation of competing retail opportunities. The market area for the retail component is small because of the availability of other shopping options in the area. Furthermore, there is a large daytime population that makes this site attractive for walking trips: employees in the LMA as well as those in the Kenmore Square area represent a component of the customer base. In addition, for Green Line MBTA users, especially those with MBTA passes, the site is a very convenient place to shop.

Another major factor that makes this an attractive retail location is the large, dense residential area surrounding the site. Figure 3-12 shows the area within 2,000 feet, or an eight-minute walk. Figure 3-13 shows a conceptual display of various market components within the immediate area. The dense daytime and residential population in this area provides a primary market for the site. Conversely, retail nodes such as those at CambridgeSide, Chestnut Hill, and the new shopping center at South Cove, as well as established business districts such as Coolidge Corner and downtown Boston limit the geographical size of the market area of the site. Figure 3-14 shows the projected retail vehicle trip distribution for the project.

Monthly Parkers -- The Olmsted Plaza project, which was predominantly an office development, based its vehicle trip distribution on the MASCO zip code information for 23,000 employees working within the Longwood Medical Area.

For the purposes of this analysis, the directional distribution for the monthly parking component of this project, which is expected to cater to area employees, is based on the data for Olmsted Plaza. Figure 3-15 shows the percent of such traffic approaching on various routes.

Figures 3-16, 3-17, and 3-18 show site traffic only for the weekday morning, weekday evening, and Saturday peak hours.

TRIP GENERATION
RETAIL TRIPS

THODOLOGY:

Used ITE data for Shopping Centers (L.U.C.820) and Supermarkets (L.U.C. 850); adjusted based on actual counts at CambridgeSide Galleria and Star Market (Boylston Street),respectively,combine volumes and adjust for overlapping trips.

ITE Trip Rate Adjustment	**Shopping Center**	**Supermarket**
A. Trips to CambridgeSide Galleria based on ITE	2205 trips ------	------ 418 trips
B. Observed Vehicle Trips at CambridgeSide/Star Market	620 trips	241 trips
C. Ratio of observed vehicle trips to projected vehicle trips	0.28	0.58

	Peak Hour Volumes			
	Shopping Center		**Supermarket**	
Trip Projections for Proposed Project	**Wkdy PM**	**Saturday**	**Wkdy PM**	**Saturday**
A. Shopping Center 390,000 sfgla @ ITE rates	1562 trips	2112 trips	------	------
B. Supermarket 60,000 sf @ ITE rates	------	------	718 trips	920 trips
C. Adjusted based on Observed vs. ITE percentage (from 1C)	@ 0.28	@ 0.28	@ 0.58	@ 0.58
-	437 trips	591 trips	416 trips	534 trips

D. TOTAL PROJECT TRIPS	TOTAL PEAK HOUR TRIPS	
	Weekday PM	Saturday
	853	1125
Adjusted to account for internal trips @ 10%	(85)	(112)
TOTAL TRIPS	768 trips	1013 trips
Assume 50/50 distribution	384 in/384 out	507 in/506 out

Trip Generation Summary -- Retail Trips

Figure 3-10

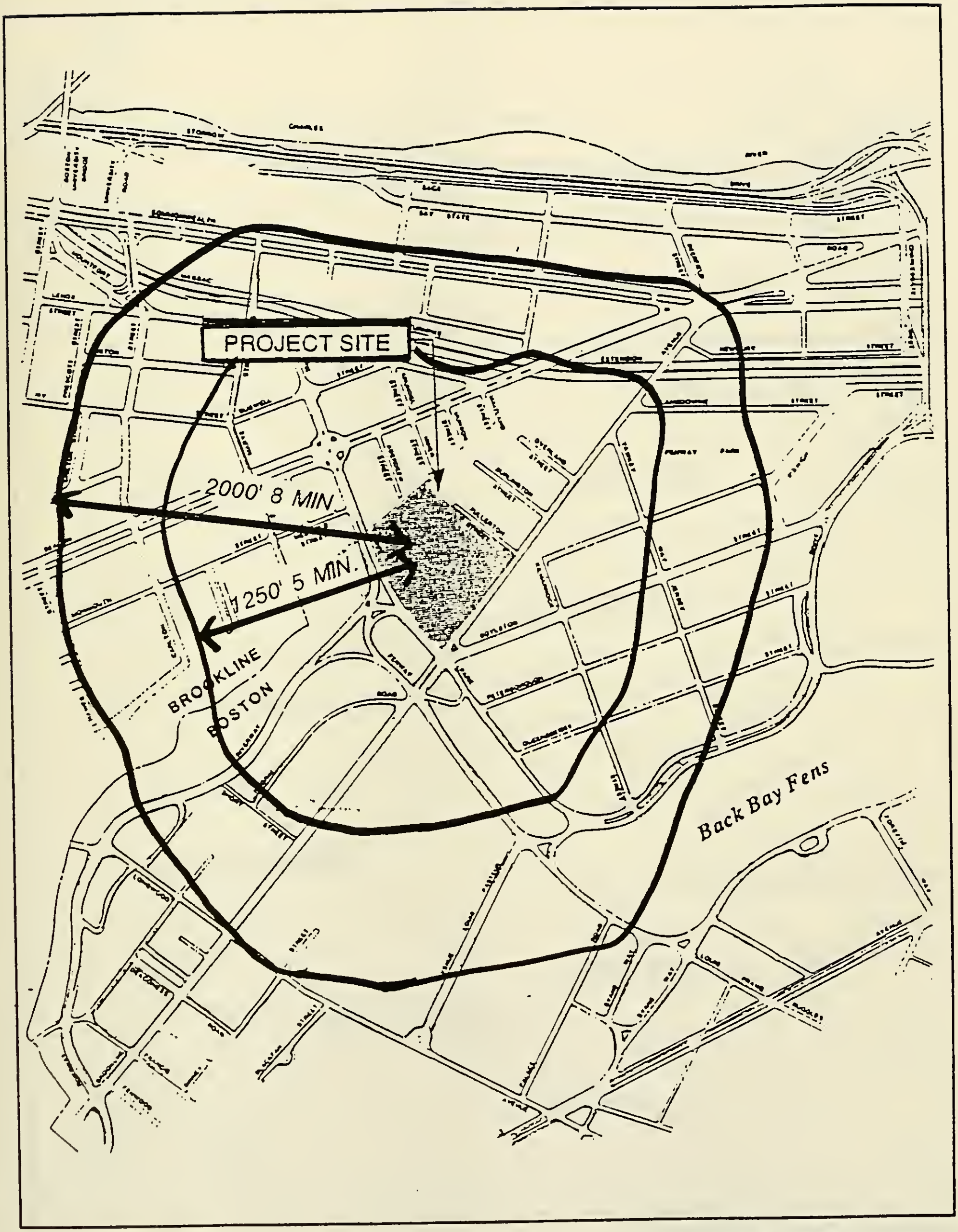
TRIP GENERATION
MONTHLY PARKER VOLUMES

	Weekday Peak Hours *	
Existing Lots:	AM Inbound	PM Outbound
Sears Lot	81 trips	64 trips
@ 301 spaces	0.27 trips/space	0.21 trips/space
Rotary Lot	62 trips	60 trips
@ 268 spaces	0.23 trips/space	0.22 trips/space
Average Rate	0.25 trips/space	0.22 trips/space
Proposed Monthly Parking		
@ 1030 spaces	258 trips	226 trips
USED FOR THIS ANALYSIS	260 trips	225 trips

* Outbound flows during the AM and inbound during the PM are negligible.

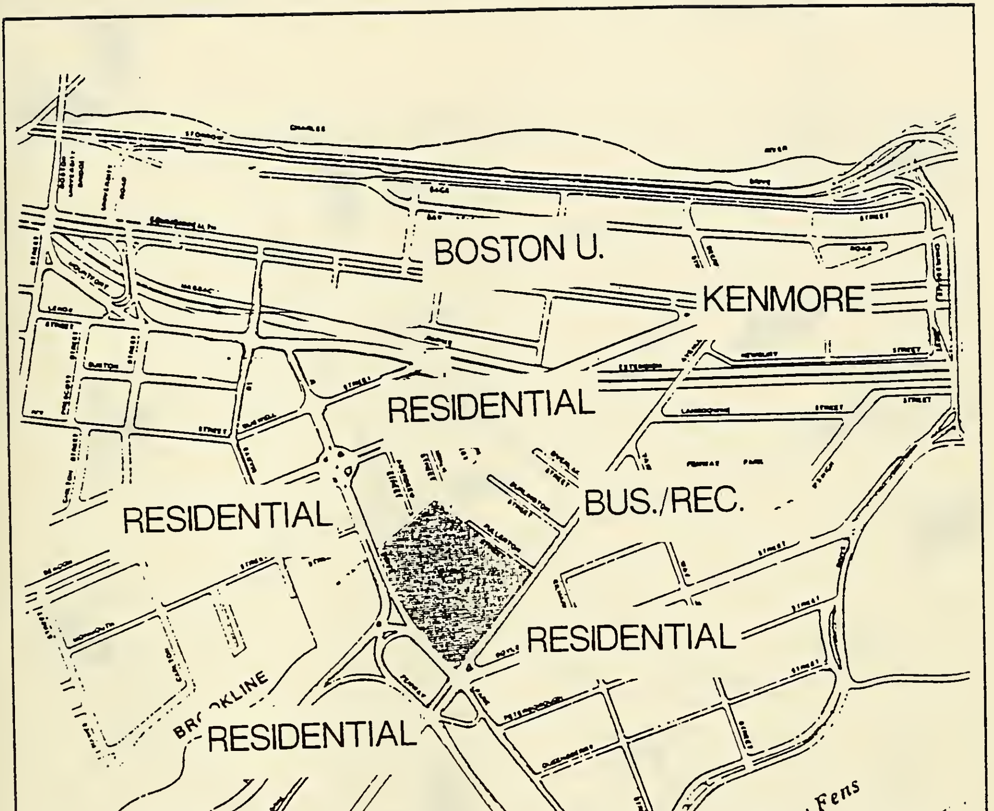
Trip Generation Summary -- Monthly Parker Trips

Figure 3-11



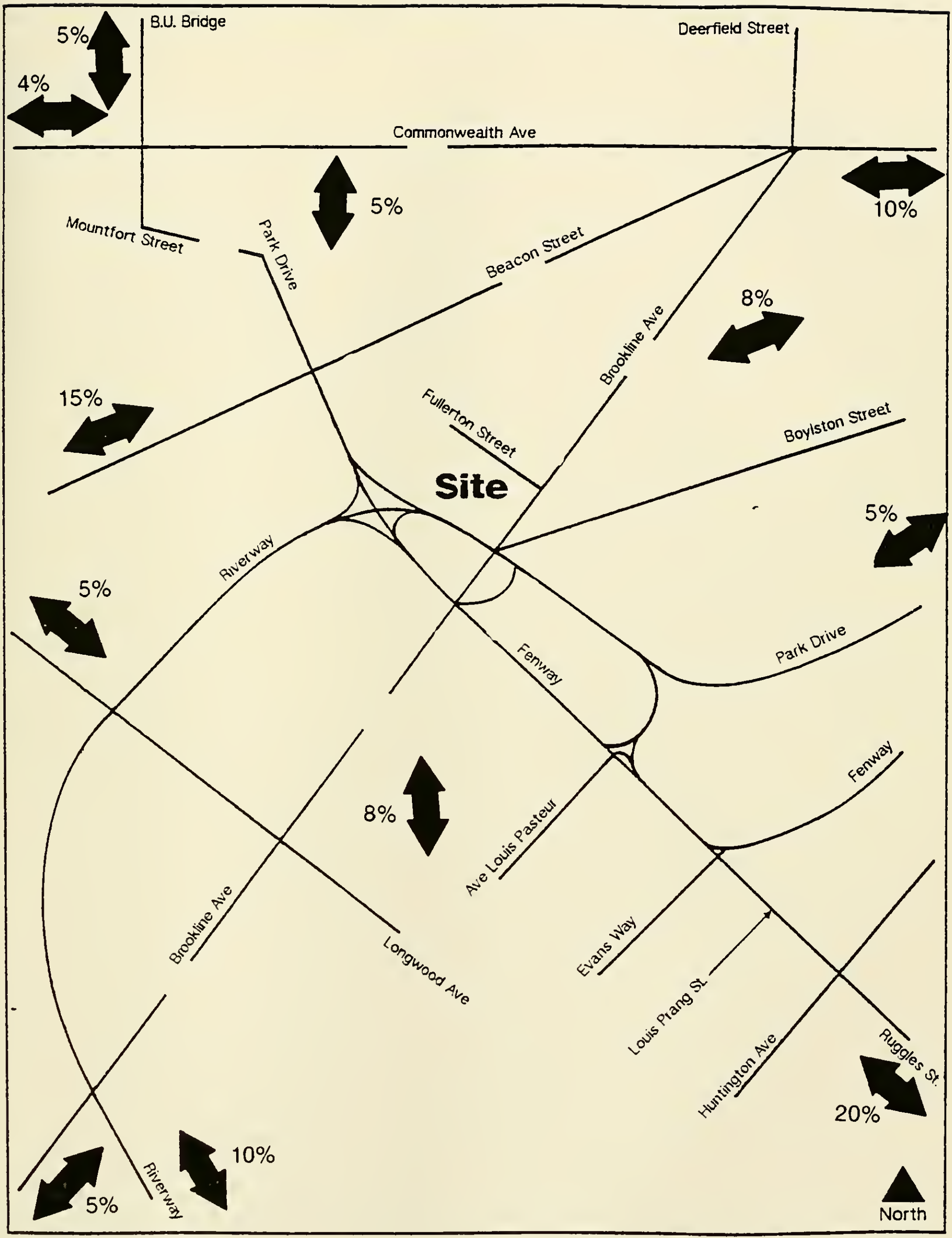
Area Within Walking Distance

Figure 3-12



Local Market Area Components

Figure 3-13



Schematic: Not to Scale

Directional Distribution -- Retail Trips

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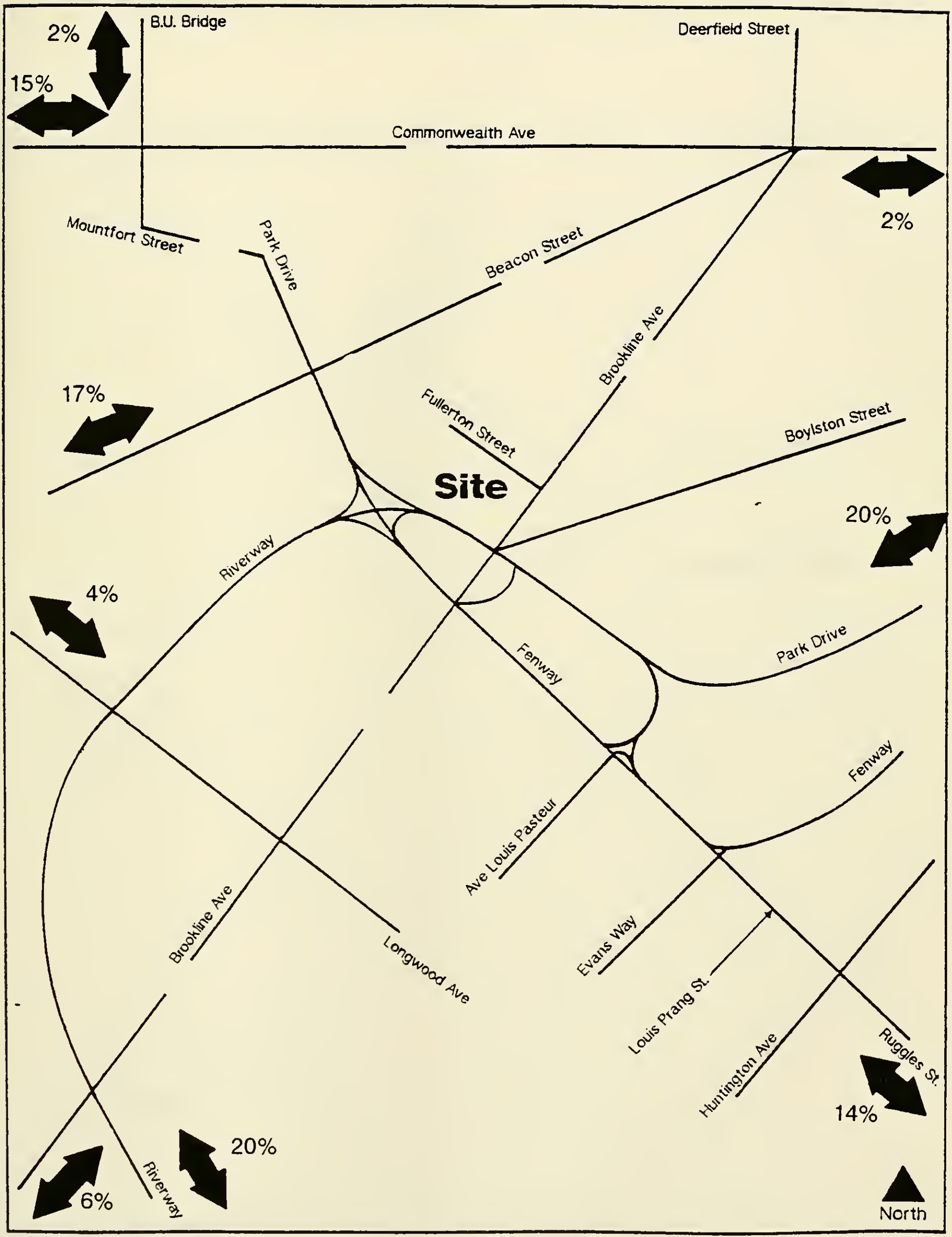
Figure 3-14



Schematic: Not to Scale

Directional Distribution -- Monthly Parking Trips

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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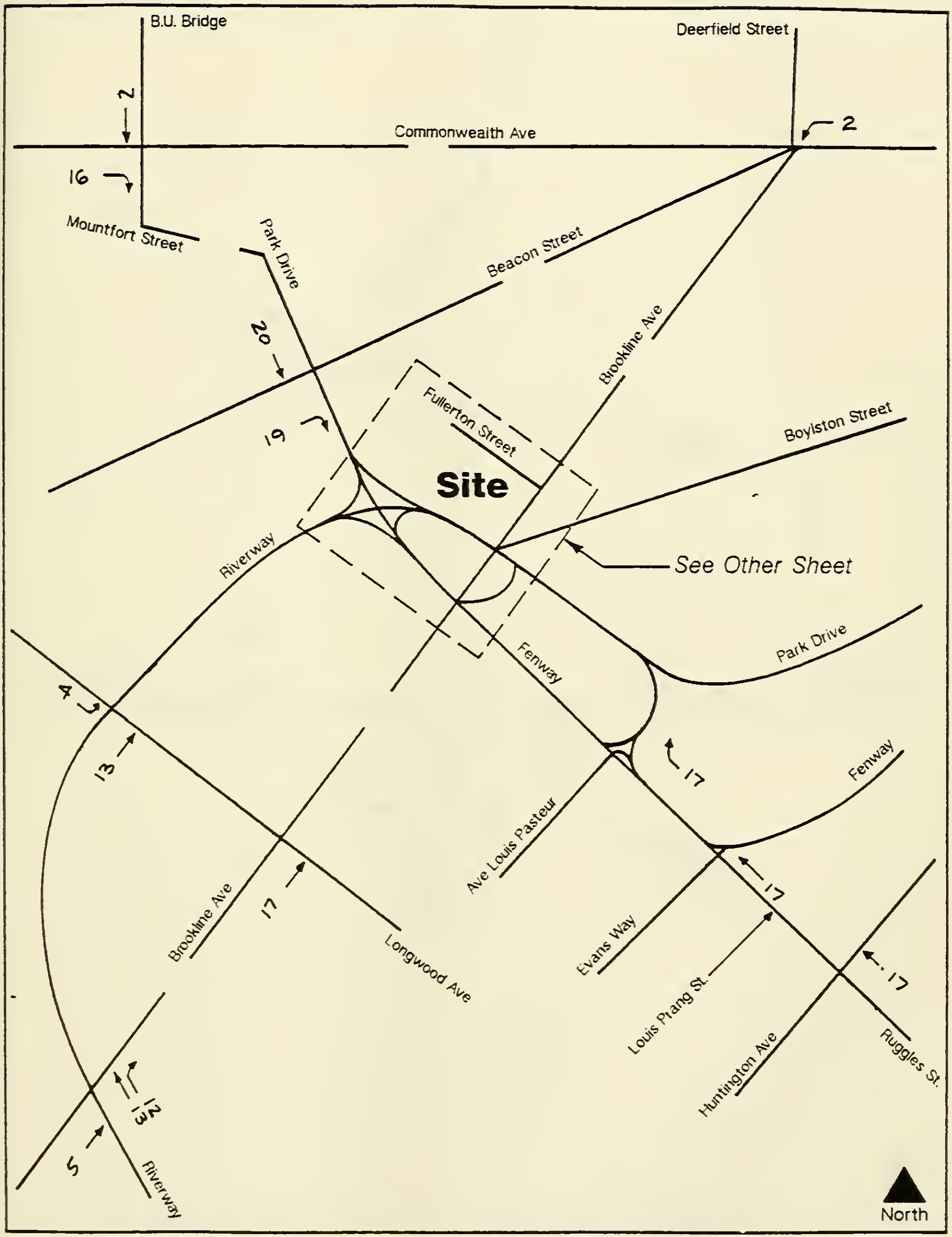
Figure 3-15



Schematic: Not to Scale

Net New Site-Related Trips
Weekday AM Peak Hour

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One Wells Avenue
Newton, MA 02159

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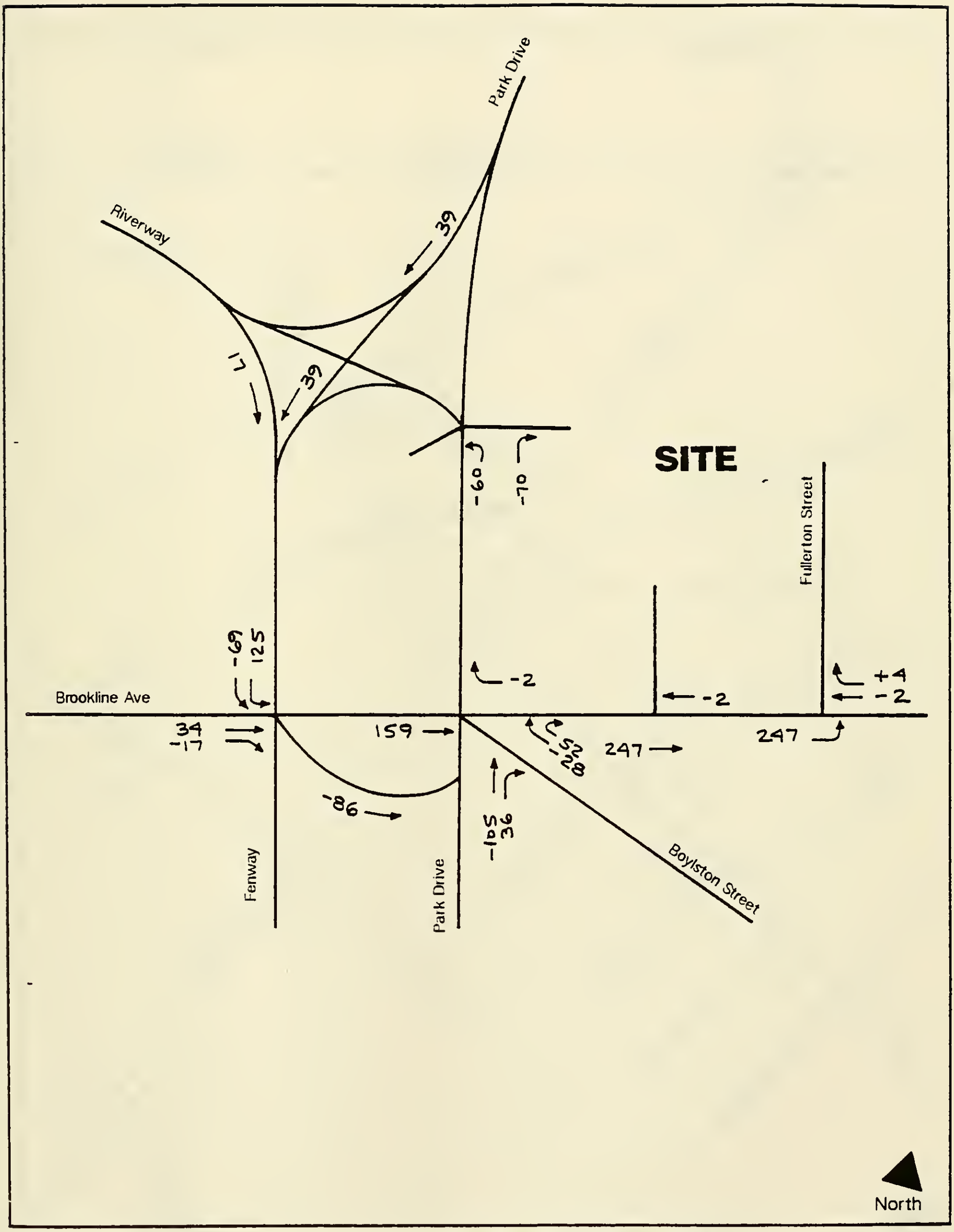
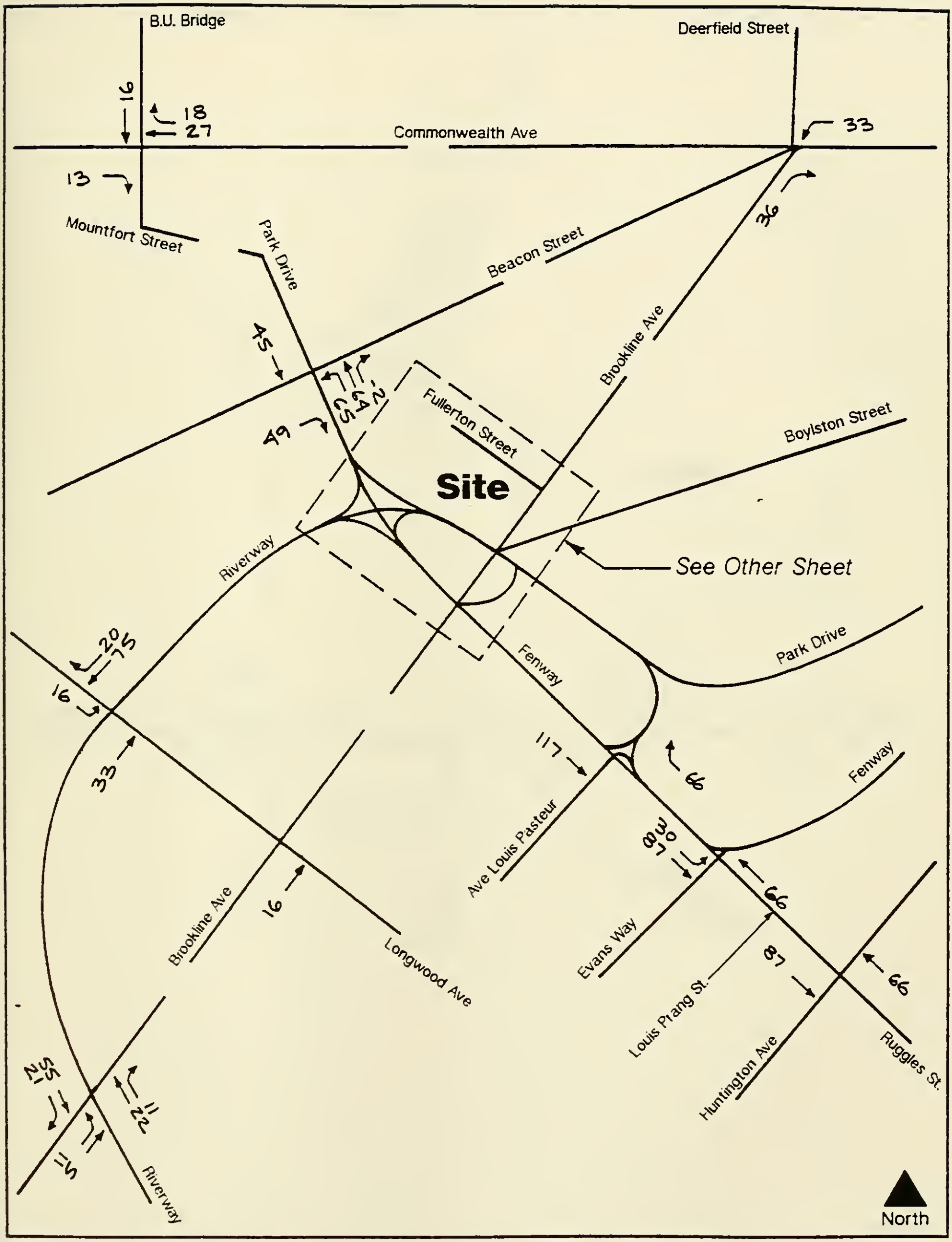
Figure 3-16A



Schematic : Not to Scale

Net New Site-Related Trips
Weekday AM Peak Hour

Figure 3-16B



Schematic: Not to Scale

Net New Site-Related Trips
Weekday PM Peak Hour

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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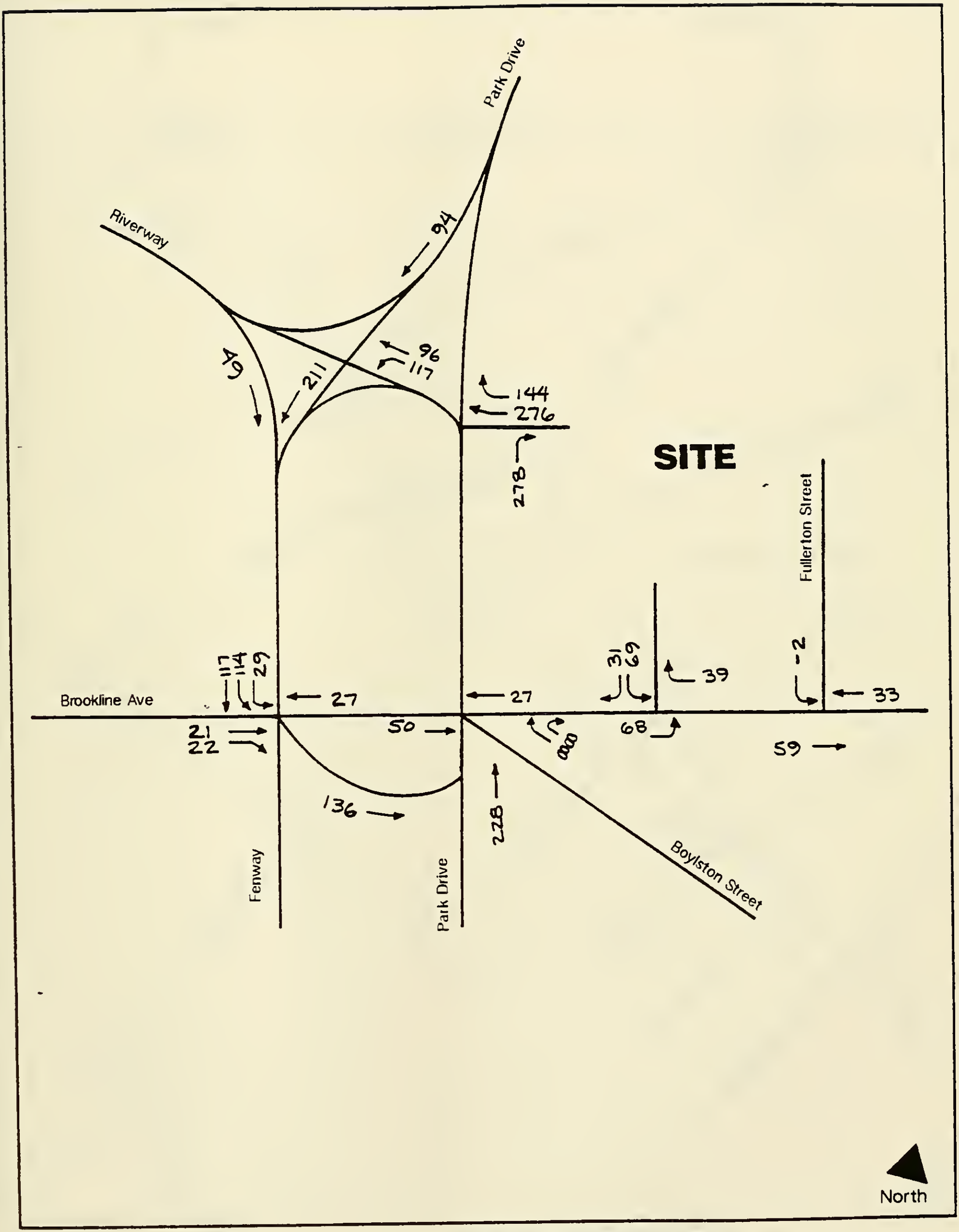
Figure 3-17A



Schematic : Not to Scale

Net New Site-Related Trips
Weekday PM Peak Hour

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

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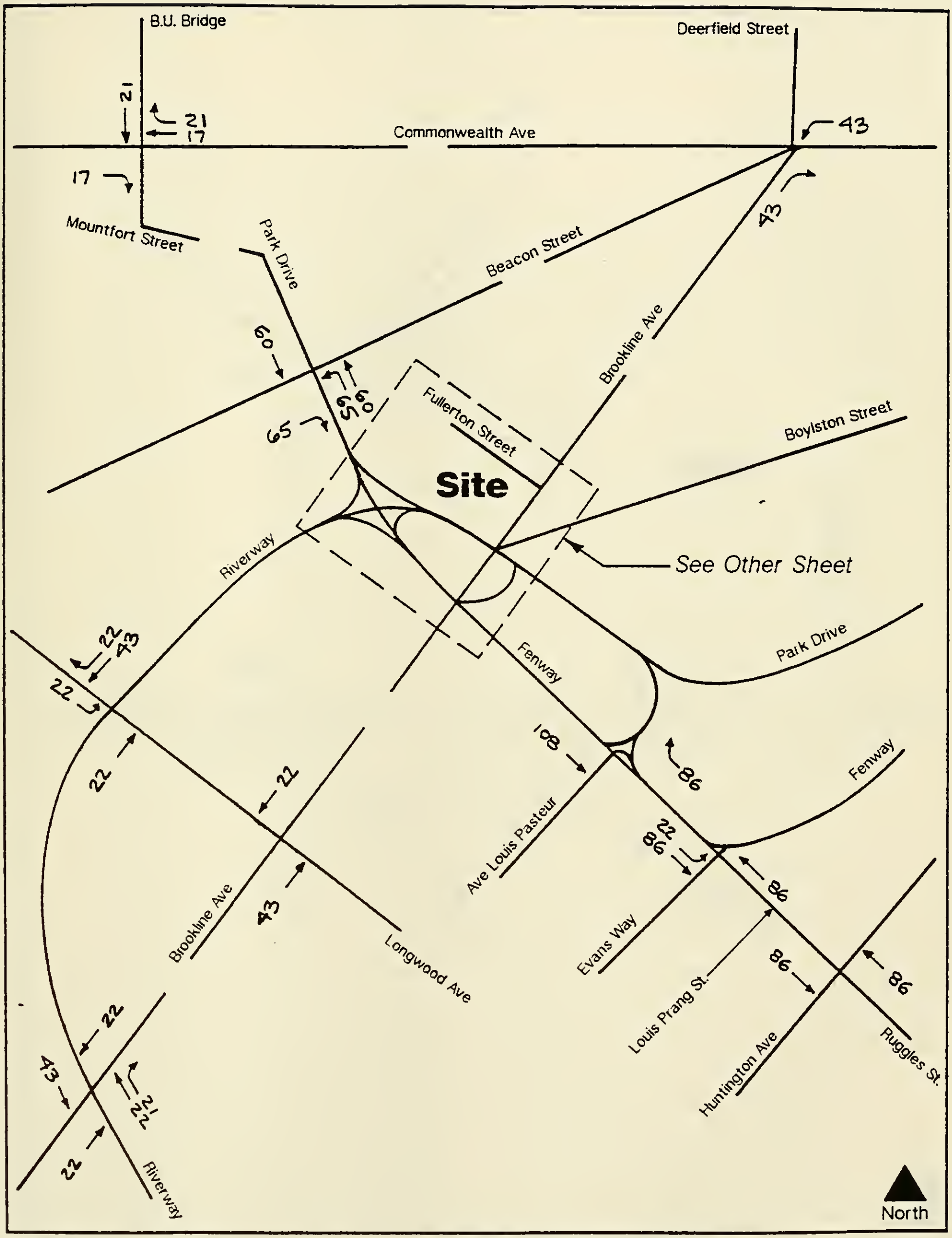
Figure 3-17B



Schematic: Not to Scale

Net New Site-Related Trips
Saturday Peak Hour

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

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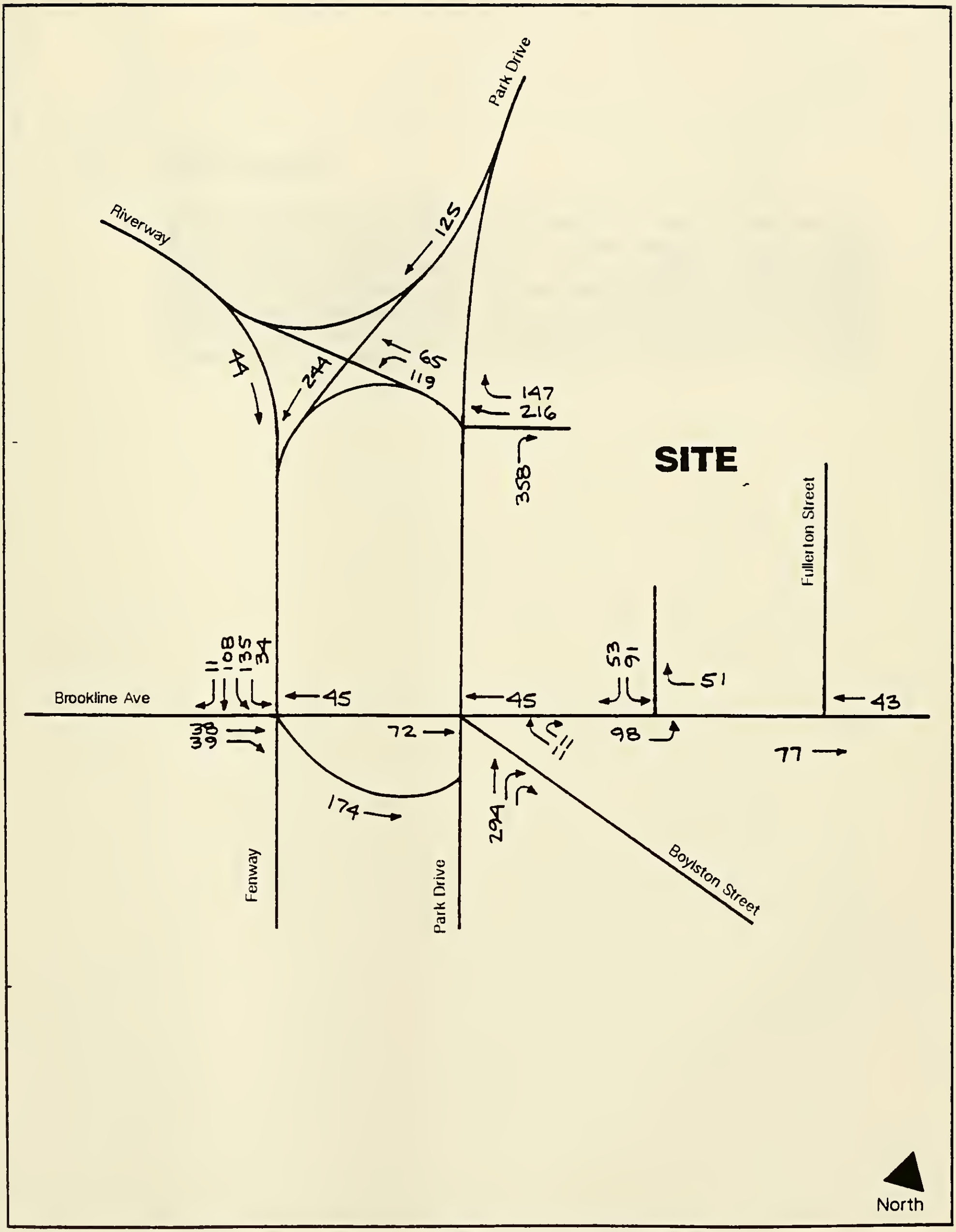
Figure 3-18A



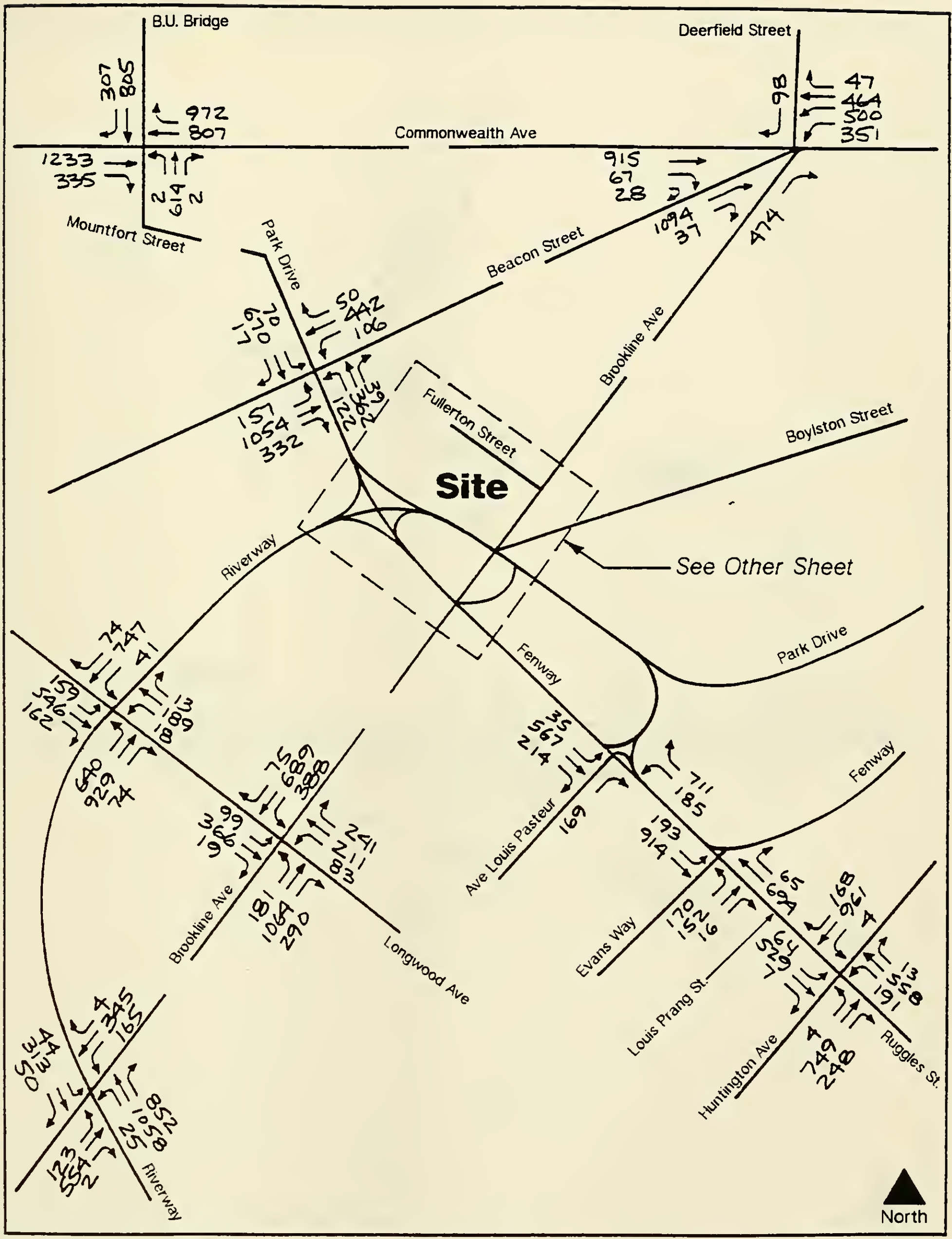
Schematic : Not to Scale

Net New Site-Related Trips
Saturday Peak Hour

Figure 3-18B

3.5 Build Conditions

Traffic projections have been made for each of the intersections studies for the year 1999 with the project in place. These so called Build condition figures consist of four components: existing traffic volumes, general background traffic growth, traffic growth associated with specific identified projects, and finally the traffic that would be generated by the Fenway Plaza project. Figures 3-19, 3-20, and 3-21 show projected 1999 traffic volumes at each of the study area intersections.



Schematic: Not to Scale

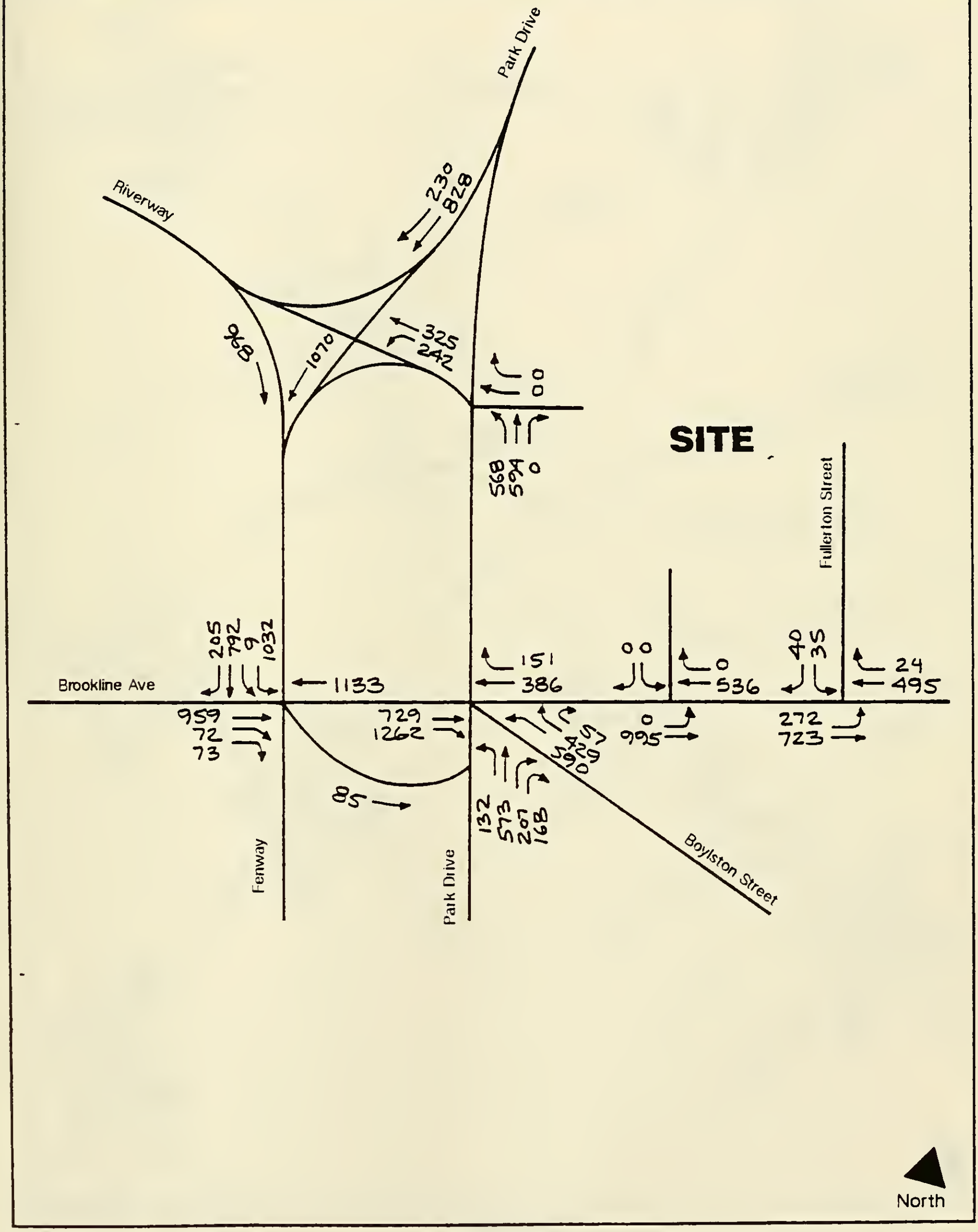
1999 Build
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

Figure 3-19A



Schematic : Not to Scale

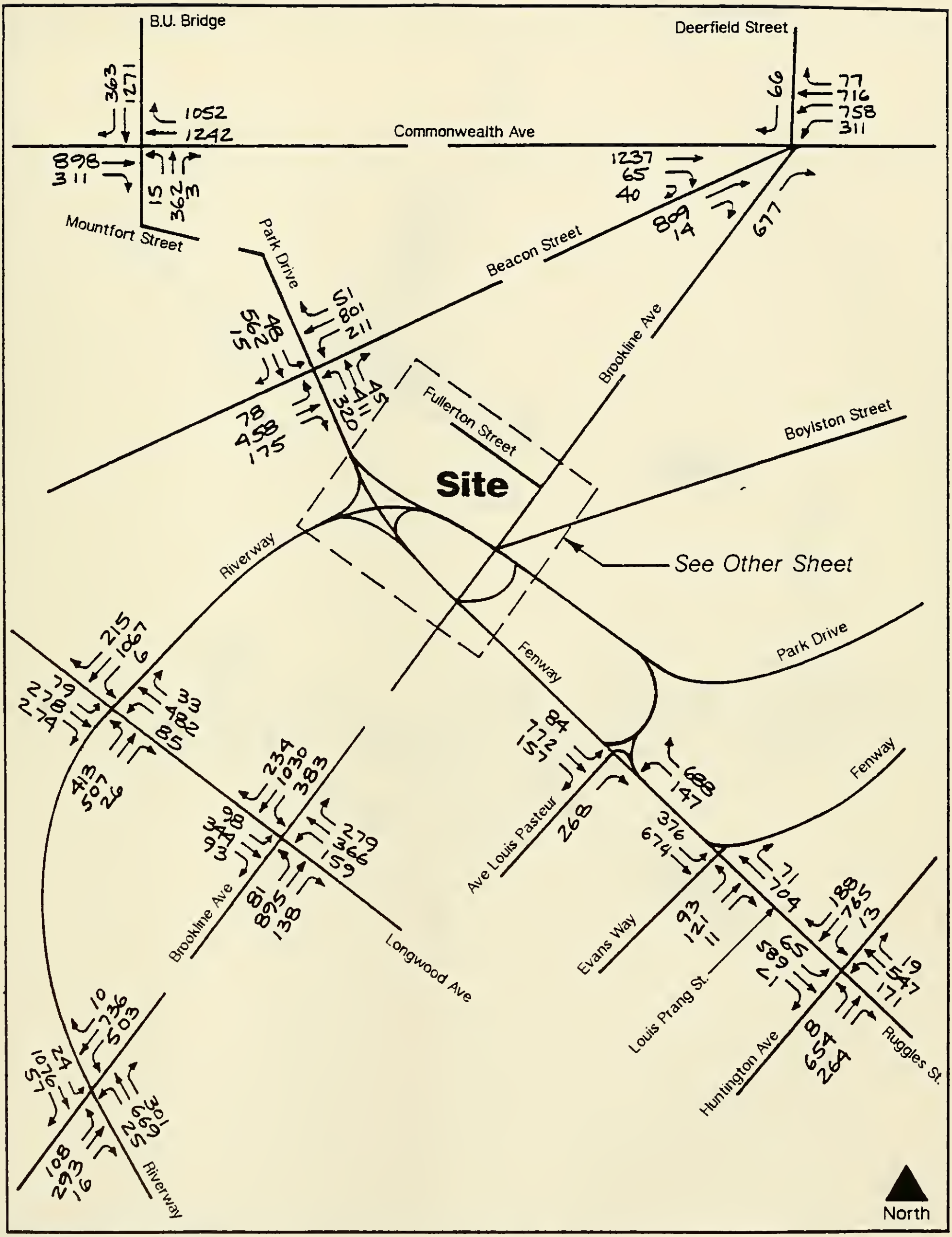
1999 Build
Weekday AM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

Figure 3-19B



Schematic: Not to Scale

1999 Build
Weekday PM Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
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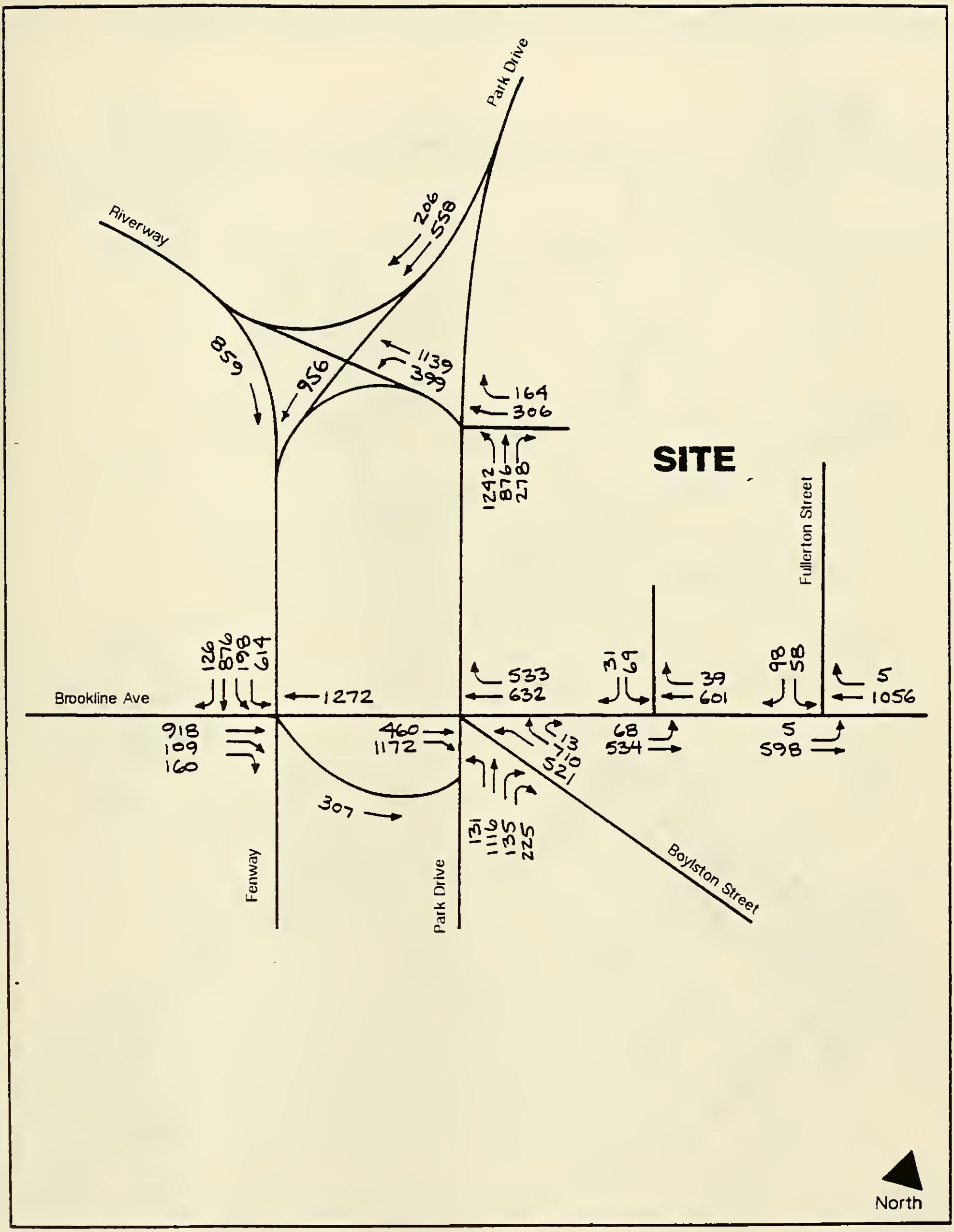
Figure 3-20A



Schematic : Not to Scale

1999 Build
Weekday PM Peak Hour Volumes

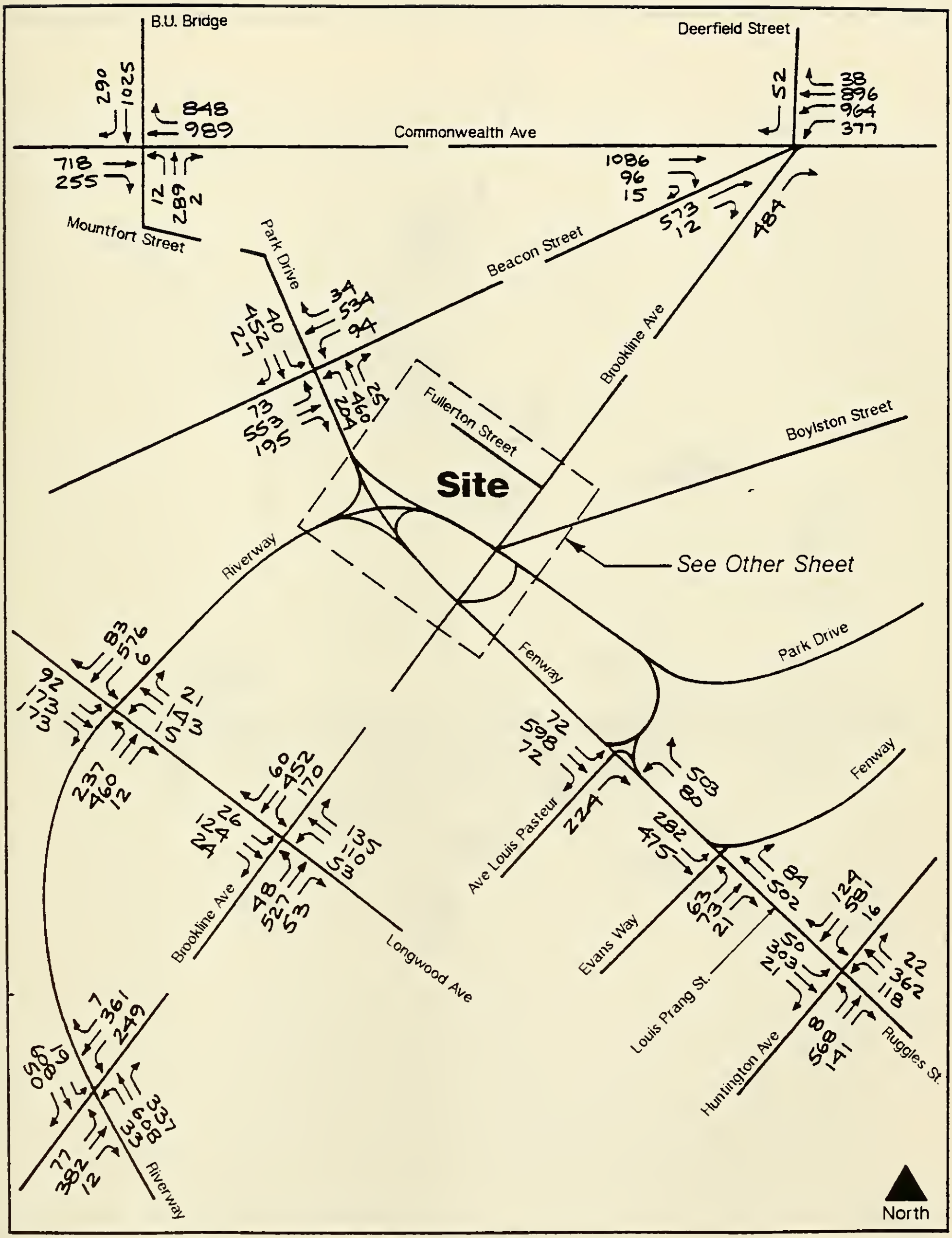
NEW ENGLAND
DEVELOPMENT

One Wells Avenue
Newton, MA 02159

Figure 3-20B

FENWAY PLAZA

A project of New England Development



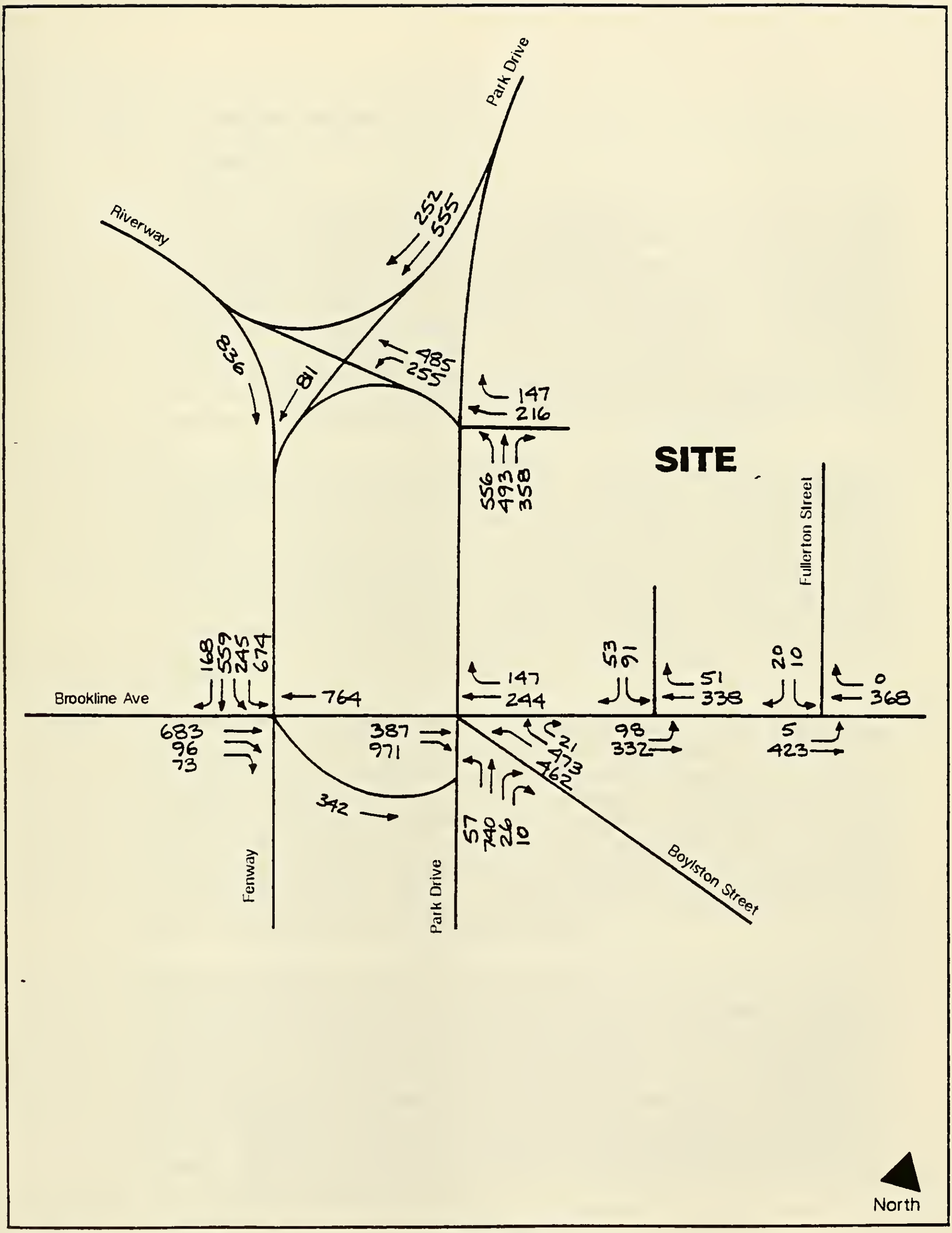
Schematic: Not to Scale

1999 Build
Saturday Peak Hour Volumes

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
A project of New England Development

Figure 3-21A



Schematic : Not to Scale

1999 Build
Saturday Peak Hour Volumes

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One Wells Avenue
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FENWAY PLAZA

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Figure 3-21B

3.6 Intersection Analysis

Introduction

Each of the intersections studied in this SPIR/NPC as well as those studied in the Olmsted Plaza PIR/EIR is discussed below. As noted previously, several intersections evaluated in the PIR/EIR have not been restudied in accordance with the BRA Scoping Determination. Prior to undertaking the SPIR/NPC analysis, the proponent, in consultation with the BRA, determined that certain intersections that had been studied in the PIR/EIR did not require reanalysis, either because they required only signal retiming to improve their Level of Service or because they required no mitigation at all. Nevertheless, to provide a comprehensive the presentation, every intersection studied in the PIR/EIR is discussed in this section.

Figures 3-22, 3-23, provide descriptions of Level of Service for signalized and unsignalized intersections as per the 1985 Highway Capacity Manual. Figures 3-24, 3-25, and 3-26 show Level of Service summaries for the weekday morning peak hour, the weekday evening peak hour, and the Saturday peak hour, respectively. Each table shows the intersection's Level of Service for the Existing conditions, No Build conditions, and Build without Mitigation. Build with Mitigation is included where the proponent is committed to such mitigation. These figures provide a complete picture of operating conditions that allows for an easy evaluation of the project's impacts.

In reviewing these figures, it is evident that the weekday evening peak hour stands out as the critical time and, therefore, it is this peak hour upon which the mitigation has been based, although where mitigation is proposed, weekday morning Levels of Service also improve. During the morning peak hour, the project's impacts are very small (a net increase of 117 trips). During the Saturday peak hour, the project generates more traffic than during the weekday evening peak hour but background volumes are substantially less than during the evening peak hour. The net result is that the Saturday Build volumes are approximately thirty percent less than the Build volumes during the evening peak hour.

MEPA and BTD guidelines have been followed throughout the process. Each of the intersections is discussed below, indicating Existing, No Build, and Build conditions for the weekday evening peak hours, the need for mitigation, and what the proponent is proposing in the way of mitigation. The capacity calculations are contained in Appendix 3.0. In addition to the traffic mitigation discussed here, the section of the report on Pedestrians has mitigation that is specifically associated with pedestrian improvements and the section on Public Transportation contains mitigation associated with transit. In some cases these overlap. A compendium of all proposed transportation mitigation is provided.

1. **Park Drive @ Beacon Street** -- This intersection currently operates at Level of Service F and will remain at F under the No Build and Build conditions. The mitigation proposed in the Olmsted Plaza PIR/EIR was the redevelopment of the intersection to provide left-turn lanes along each approach. This same mitigation is now proposed by the Fenway Plaza proponent. All work would take place within the existing traveled way and would involve the removal of median islands to provide space for the left-turn lanes. On the Park Drive approach coming from the site, the design calls for a peak hour parking restriction for four curb spaces. Figure 3-27 shows the proposed mitigation which is identical to that proposed in the Olmsted Plaza PIR/EIR. This is a major improvement which addresses pedestrian safety concerns as well.

2. **Park Drive @ Riverway** -- This intersection, which is in front of the site, operates at Level of Service B now and will continue to operate at Level of Service B with or without the project in the future. The PIR/EIR proposed the installation of a pedestrian signal at this location to enhance crossings of Park Drive/Riverway/Fenway. The proponent is proposing to provide the same mitigation which is tied into an overall improvement of the missing link rotary pattern.

3. **Fenway @ Brookline Avenue** -- This intersection currently operates at Level of Service C and will remain at this level under the No Build and Build conditions. The PIR/EIR showed a Level of Service of F improved to Level of Service C by changing the signal timing. It is possible that such signal timing has already occurred which would account for the better Level of Service now shown for Existing conditions. The PIR/EIR proposed the construction of pedestrian ramps, signal retiming, and new pavement markings. In view of the fact that the projected Build Level of Service is adequate, no mitigation is currently proposed to increase vehicle capacity for this intersection. However, additional retiming is proposed to enhance pedestrian crossings of the Fenway.

4. **Park Drive @ Brookline Avenue/Boylston Street** -- This intersection adjacent to the site currently operates at Level of Service D, will drop to F under No Build, and would remain at F under Build conditions. The PIR/EIR showed an Existing F Level of Service but did not propose any mitigation that would improve the Level of Service. It did, however, call for maintenance mitigation consisting of refurbishing the intersection but with no significant geometric changes that would improve Level of Service.

   The Fenway Plaza mitigation proposal calls for the addition of a third lane on the southbound Brookline Avenue approach to provide an exclusive right-turn lane for the heavy right turn volume onto Park Drive. The right-turn lane from Boylston Street onto Brookline Avenue is being narrowed to provide some additional room for a pedestrian refuge on the existing triangular island. Pedestrian improvements including sidewalk modifications and better located pedestrian push buttons are discussed in the section on Pedestrian Mitigation.

With the additional right-turn lane along Brookline Avenue, the Build Level of Service improves to Level of Service E (51-second delay) which is better than the No Build condition of F (62-second delay). Figure 3-28 provides a schematic diagram of the proposed layout.

5. Brookline Avenue @ Longwood Avenue -- This intersection currently operates at Level of Service E and will remain at Level of Service E under the No Build and Build conditions. The PIR/EIR proposed reworking the signal equipment, new signs, and pavement markings. The biggest impact of the Olmsted Plaza project was during the weekday morning peak hour, but the current project has no significant impact during that peak hour. During the weekday evening peak hour, the average delay drops from about 55 seconds for No Build to 58 seconds for Build. This is a very small increase and since the project's impacts represent less than one percent of total approach volumes at the intersection during the weekday morning and weekday evening peak hours, no mitigation is proposed.

6. Riverway @ Longwood Avenue -- This intersection currently operates at Level of Service E and will operate at Level of Service F under the No Build and Build conditions. The PIR/EIR proposed some signal changes that would have improved the Level of Service to E under the Build condition. However, this was proposed primarily to address the poor weekday morning peak hour condition. Since the project contributes less than five percent of traffic to the intersection, and there is no feasible mitigation that would improve Level of Service commensurate with the project's impacts, no mitigation is proposed.

7. Kenmore Square -- Kenmore Square currently operates at Level of Service D and will remain at that Level of Service under the No Build and Build conditions. The Olmsted Plaza PIR/EIR proposed signal timing which would improve the Level of Service from F to D. It is possible that this signal retiming has already been accomplished since the intersection now operates at Level of Service D. The project does not change the Level of Service, although the Average Delay increases by two seconds. The project increases weekday evening peak hour volumes by only 1.4 percent; no mitigation is proposed.

8. **Boylston Street @ Park Drive** -- This location was not re-evaluated in the SPIR/NPC. This intersection was calculated at Level of Service A in the PIR/EIR and it is apparent that no mitigation is required nor was any proposed in the PIR/EIR. No mitigation is proposed.

9. **Fenway @ Avenue Louis Pasteur** -- This is an unsignalized intersection that operates at Level of Service B under Existing and No Build and drops to C under Build. The PIR/EIR proposed signalization of this intersection which would have brought the Level of Service up to B. Based on the capacity calculations, the operations here do not warrant signalization. No mitigation is proposed.

10. **Huntington Avenue @ Louis Prang/Ruggles Street** -- This intersection currently operates at Level of Service D, will drop to E under No Build and will remain at E under Build. The PIR/EIR called for the construction of a northbound right-turn lane on Huntington Avenue. On Louis Prang Street, the existing centerline would have to be relocated to allow a two-lane approach at Huntington Avenue. The proponent is prepared to make the pavement striping changes to the Louis Prang Street approach. The project contributes less than five percent of Build traffic volumes to the intersection.

11. **Brookline Avenue @ Fullerton Street** -- The movements out of Fullerton Street operate at Level of Service E and will remain at this Level of Service under the No Build and Build conditions. The PIR/EIR called for the widening of Fullerton Street to provide a two-lane approach, one for right-turns and one for left-turns. This mitigation is still desirable for general traffic as well as from the proponent's standpoint, since Fullerton Street provides access to the project. The proponent will do this and also proposes to revise the cross-section of Brookline Avenue to provide a left-turn storage lane for left-turns into Fullerton Street. This will require the elimination of some parking spaces on the south side of Brookline Avenue. As part of the site work, pedestrian crossings and routings in the vicinity of the intersection will also be improved.

12. **Brookline Avenue @ Riverway** -- This intersection currently operates at Level of Service F and will continue to do so under the No Build and Build conditions. The PIR/EIR proposed a number of minor changes to improve the intersection even though it would have continued to operate at Level of Service F. Major improvements to this intersection have been proposed in the past by MASCO and other nearby traffic generators. Since the Fenway Plaza project has a small (3.3%) impact on this intersection, no mitigation is proposed.

13. **Park Drive @ Fenway** -- This intersection was not reanalyzed. In the Olmsted Plaza EIR, improved signal timing brought the Level of Service from F to C. The proponent of Fenway Plaza would do signal retiming, as necessary, to improve operations at this intersection. It is possible that such timing changes may have already occurred since the PIR/EIR was prepared.

14. **Commonwealth Avenue @ B.U. Bridge** -- This intersection operates at Level of Service F and will continue to do so under the No Build and Build conditions without mitigation. The PIR/EIR proposed the construction of a widened two-lane, right-turn roadway from Commonwealth Avenue to the bridge which required landtaking from BU.

    In analyzing this intersection, it was found that by modifying the triangular island that channelizes the right turns, and converting one of the westbound through lanes to a second right-turn lane, the Build Level of Service would remain at F but with a delay of seven seconds better than under Existing conditions. The proponent proposes to make this change and, thus, improve the Level of Service without landtaking or major new construction. The project represents only 1.3 percent of Build volumes at this location .

15. **Commonwealth Avenue @ Carlton Street** -- This intersection was not reanalyzed because the PIR/EIR found that a retiming would improve the Build Level of Service from F to D. The proponent will pay for such signal retiming if it has not already been done.

16. **Fenway @ Evans Way/Louis Prang** -- This intersection operates at Level of Service E but will drop to F under No Build and remain at F under the Build conditions without mitigation. The PIR/EIR proposed signal modifications that if undertaken would improve the weekday evening Level of Service from F to B. The proponent proposes to undertake those signal changes that were previously proposed that significantly improved Level of Service. They included interconnecting the signal to the one at Huntington Avenue/Ruggles Street and allowing the signal to go to a flashing mode from 7:00 PM to 7:00 AM.

17. **Charlesgate West @ Beacon Street** -- This intersection was not reanalyzed because in the PIR/EIR, it was found to operate at Level of Service C under Build conditions; therefore, no improvements were or are proposed.

18. Charlesgate East @ U.S. Route 1 Off-Ramp -- This intersection was not reanalyzed. The PIR/EIR found that the intersection operated at Level of Service C and would remain at that level under the No Build and Build conditions. Therefore, no improvements were or are proposed.

19. Beacon Street @ Maitland Street/Mountfort Street -- This intersection was not reanalyzed. The PIR/EIR found that the intersection operated at Level of Service A with and without the project. Therefore, no improvements were or are proposed.

20. Beacon Street @ Miner Street/Arundal Street -- This intersection was not reanalyzed because the PIR/EIR found that the intersection operated at Level of Service A even with the project in place. Therefore, no improvements were or are proposed.

21. Riverway @ Fenway -- This is an unsignalized "merge" that cannot readily be analyzed using the Highway Capacity Manual methodology. There is a considerable amount of weaving on the section of the Fenway between the "Y" intersection with the Riverway and Brookline Avenue. The PIR/EIR proposed that this intersection be signalized to eliminate this conflict. The signal would have been coordinated with other signals in the rotary area as necessary. This change would allow the Brookline Avenue/Fenway intersection to operate more efficiently. The Fenway Plaza proponent has included this signal in its mitigation package. A pedestrian crossing will also be incorporated which is an important feature of this mitigation.

22. Park Drive @ Avenue Louis Pasteur -- This intersection was not reanalyzed because the PIR/EIR found it to be operating at Level of Service C for the No Build and Build conditions. No mitigation is indicated.

23. Park Drive @ Site -- No calculations were done for the Existing conditions since these would be changed with the project in place. The PIR/EIR, which did make these calculations, found that this intersection operated at Level of Service A under No Build and at Level of Service B under Build conditions. Operations will be at Level of Service C under Build condition for Fenway Plaza. The intersection needs substantial refurbishing which would be done as part of the site work. New signal heads, including appropriate pedestrian accommodations will be provided. The Olmsted Plaza PIR/EIR made the same recommendations.

24. Carlton Street @ Mountfort Street -- This intersection was not reanalyzed. The PIR/EIR found that by retiming the signals, its Level of Service would improve from F to C during the weekday evening peak hour. The proponent will undertake this signal retiming if the city has not already done so.

25. **Boylston Street @ Ipswich Street** -- This intersection was not reanalyzed. It operates at Level of Service B and will remain at B under the No Build condition and will drop to C under the Build condition. The PIR/EIR proposed to retime the signal even though the intersection already operated at a good Level of Service. No further mitigation is proposed.

26. **Longwood Avenue @ Chapel Street** -- This intersection was not reanalyzed. The PIR/EIR found it to be operating at an acceptable Level of Service. During the weekday evening peak hour, the intersection is at Level of Service B under the Existing, No Build, and Build conditions. The project impacts on this intersection are very minor and Levels of Service are adequate. Therefore, no mitigation is proposed. MASCO is currently working to make minor modifications here with the cooperation of the MDC and the Town of Brookline that would improve vehicular and pedestrian movement.

Summary -- The project is considerably smaller than the Olmsted project in terms of square footage and traffic impact. During the weekday morning peak hour, the project has virtually no impact on the street network with traffic limited to the effect of the added monthly parker spaces. During the weekday evening peak hour, the Fenway Plaza project has driveway volumes comparable to the Olmsted Plaza project but because of its retail nature, some of the Fenway Plaza traffic represents people who are already traveling past the site. The net effect is that the project has about the same or less impact during the weekday evening peak hour than the Olmsted Plaza project, except at the project driveways where the weekday evening peak hour volumes are about the same. On Saturdays, the Fenway Plaza project generates more traffic than Olmsted Plaza would have, but background traffic volumes are significantly lower. The calculations show that Levels of Service on a Saturday afternoon are equal to in most cases or better than during the weekday evening peak hour for every location within the study area.

Another important difference between the previously proposed and currently proposed projects is the directional distribution. The Olmsted Plaza project, which produced most of its traffic during the commuter rush hours, attracted most of its traffic from outside the Fenway neighborhood. This traffic approached on the major arterial streets and highways of the area. The Fenway Plaza project generates most of its traffic in connection with its retail component including a supermarket, which has a much smaller drawing area. In the case of the supermarket, virtually the entire market area is within the neighborhood. The net effect is that the intersections at the perimeter of the study area are not affected at all by traffic that originates within the study area.

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Reserve Capacity	Level of Service	Expected Delay to Minor Street Traffic
400	A	Little or No Delay
300 - 399	B	Short Traffic Delays
200 - 299	C	Average Traffic Delays
100 - 199	D	Long Traffic Delays
0 - 99	E	Very Long Traffic Delays
0	F	Severe Congestion

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board (TRB), National Research Council, 1985.

Level of Service Descriptions
Unsignalized

Figure 3-22

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS)	TRAFFIC QUALITY	Stopped Delay Per Vehicle (1) (SEC)
A	LOS A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths also contribute low delay.	≤ 5.0
B	LOS B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delays.	5.1 to 15.0
C	LOS C has higher delays that may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	15.1 to 25.0
D	LOS D the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping decline. Individual cycle failures are noticeable.	25.1 to 40.0
E	LOS E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.	40.1 to 60.0
F	LOS F is considered to be unacceptable to drivers. This condition often occurs with saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high V/C ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes of such delays.	> 60.0

(1) Average stop delay per vehicle for a 15 minute analysis period.

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board (TRB), National Research Council, 1985.

Level of Service Descriptions
Signalized

Figure 3-23

LEVEL OF SERVICE

AM PEAK HOUR

Location	1994 Existing	1999 No Build	1999 Build w/o Mitigation	w/Mitigation
Park Drive @ Beacon Street	E/51.7	F/98.6	F/109	D/30.1
Park Drive @ Riverway	B/ 7.0	B/ 6.9	B/ 6.9	
Fenway @ Brookline Avenue	C/22.1	C/23.0	C/23.4	
Park Drive @ Brookline Avenue/ Boylston Street	D/35.9	D/29.8	F/63	D/39.0
Brookline Avenue @ Longwood Avenue	F/66.7	F/156	F/163	
Riverway @ Longwood Avenue	F/180	F/262	F/268	
Kenmore Square	D/27.9	D/34.6	D/34.7	
Fenway @ Avenue Louis Pasteur	A/613 A/522	A/583 A/494	A/583 A/494	
Huntington Avenue @ Louis Prang/Ruggles St	D/38.3	E/56.4	E/58.7	
Brookline Avenue @ Fullerton Street	A/840 B/305	A/781 C/227	A/507 E/ 89	
Brookline Avenue @ Riverway	F/63.7	F/144	F/153	
Commonwealth Avenue @ B.U. Bridge	E/40.1	E/49.6	E/49.9	D/37.7
Fenway @ Evans Way/ Louis Prang	E/51.3	E/56.0	F/62	C (est.) based on FEIR
Riverway @ Fenway	C (est.)	C (est.)	C (est.)	B/ 9.8
Park Drive @ Site	N/A	N/A	N/A	

Level of Service Summary
Weekday AM Peak Hour

Figure 3-24

LEVEL OF SERVICE

PM PEAK HOUR

Location	1994 Existing	1999 No Build	1999 Build w/o Mitigation	w/Mitigation
Park Drive @ Beacon Street	F/66.3	F/69.3	F/81.4	D/35.2
Park Drive @ Riverway	B/ 6.8	B/ 6.9	B/ 7.2	
Fenway @ Brookline Avenue	C/15.9	C/18.0	C/19.3	
Park Drive @ Brookline Avenue/ Boylston Street	D/38.5	F/61.7	F/89.7	E/51.3
Brookline Avenue @ Longwood Avenue	E/49.1	E/55.3	E/57.6	
Riverway @ Longwood Avenue	E/58.2	F/66.4	F/84.7	
Kenmore Square	D/30.6	D/37.6	D/39.6	
Fenway @ Avenue Louis Pasteur	A/598 B/380	A/555 B/332	A/474 C/256	
Huntington Avenue @ Louis Prang/Ruggles St	D/30.8	E/40.5	E/51.8	
Brookline Avenue @ Fullerton Street	A/532 E/ 92	A/462 E/ 34	A/445 E/ 20	
Brookline Avenue @ Riverway	F/70.8	F/160	F/209	
Commonwealth Avenue @ B.U. Bridge	F/88.5	F/111	F/116	F/81.8
Fenway @ Evans Way/ Louis Prang	E/41.4	F/60.6	F/84.7	C (est.) based on FEIR
Riverway @ Fenway	C (est.)	C (est.)	C (est.)	B/ 9.0
Park Drive @ Site	N/A	N/A	C/17.2	

Level of Service Summary
Weekday PM Peak Hour

Figure 3-25

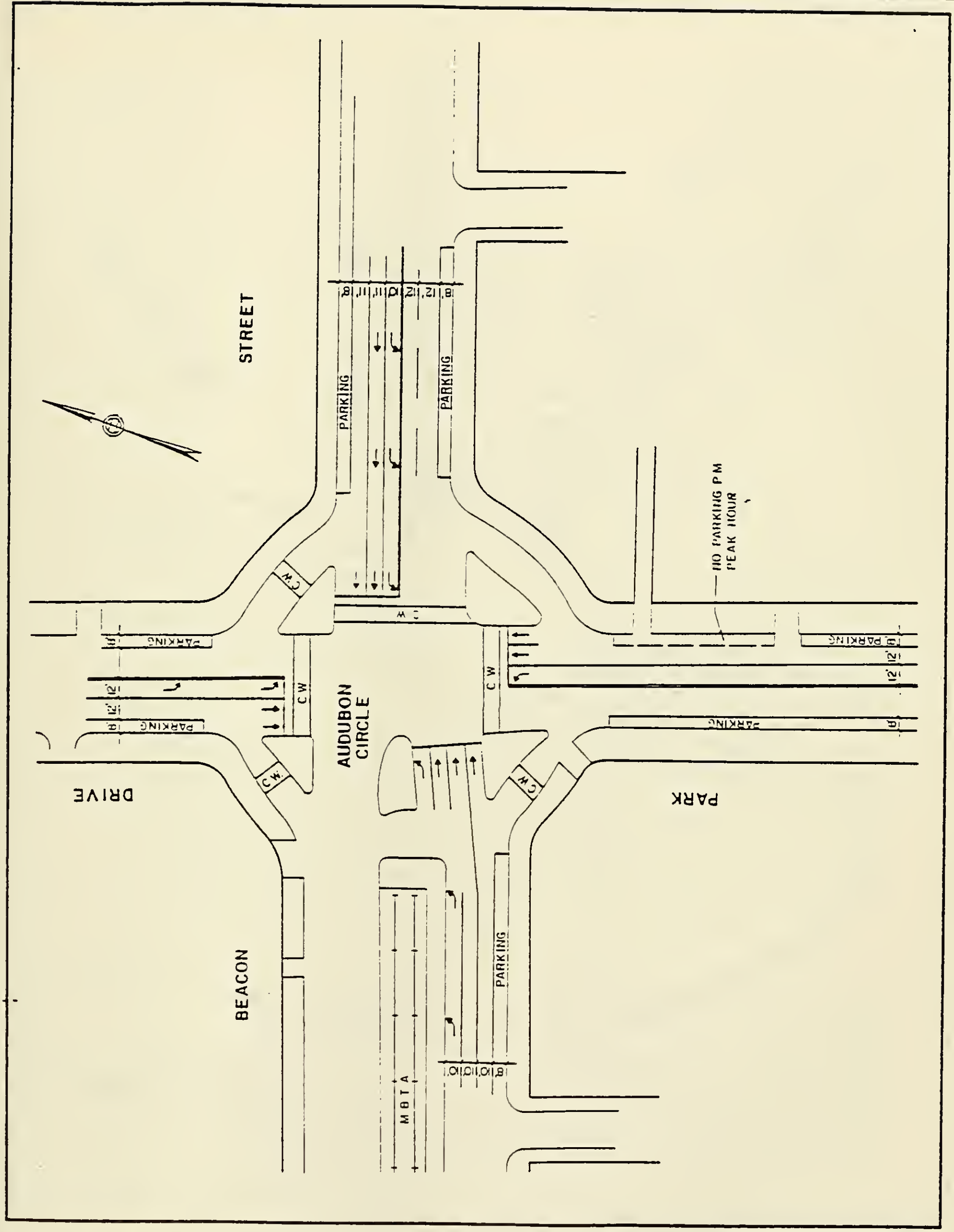
LEVEL OF SERVICE

SATURDAY PEAK HOUR

Location	1994 Existing	1999 No Build	1999Build w/o Mitigation	1999Build w/Mitigation
Park Drive @ Beacon Street	C/20.4	C/21.1	C/23.8	C/20.4
Park Drive @ Riverway	B/ 7.0	B/ 7.0	B/ 7.5	
Fenway @ Brookline Avenue	C/17.7	C/18.2	C/18.7	
Park Drive @ Brookline Avenue/ Boylston Street	B/13.2	B/13.8	C/15.2	B/14.3
Brookline Avenue @ Longwood Avenue	B/13.9	C/17.9	C/18.1	
Riverway @ Longwood Avenue	C/17.0	C/17.6	C/18.9	
Kenmore Square	D/25.8	D/31.0	D/32.3	
Fenway @ Avenue Louis Pasteur	A/776 A/531	A/753 A/501	A/665 A/416	
Huntington Avenue @ Louis Prang/Ruggles St	C/20.5	C/20.9	C/22.0	
Brookline Avenue @ Fullerton Street	A/983 A/638	A/969 A/619	A/930 A/552	
Brookline Avenue @ Riverway	C/23.9	D/25.5	D/29.7	
Commonwealth Avenue @ B.U. Bridge	D/32.1	D/37.5	E/42.2	D/31.8
Fenway @ Evans Way/ Louis Prang	C/22.9	C/23.9	D/26.3	
Riverway @ Fenway	C (est.)	C (est.)	C (est.)	B/ 8.8
Park Drive @ Site	N/A	N/A	B/ 11.5	

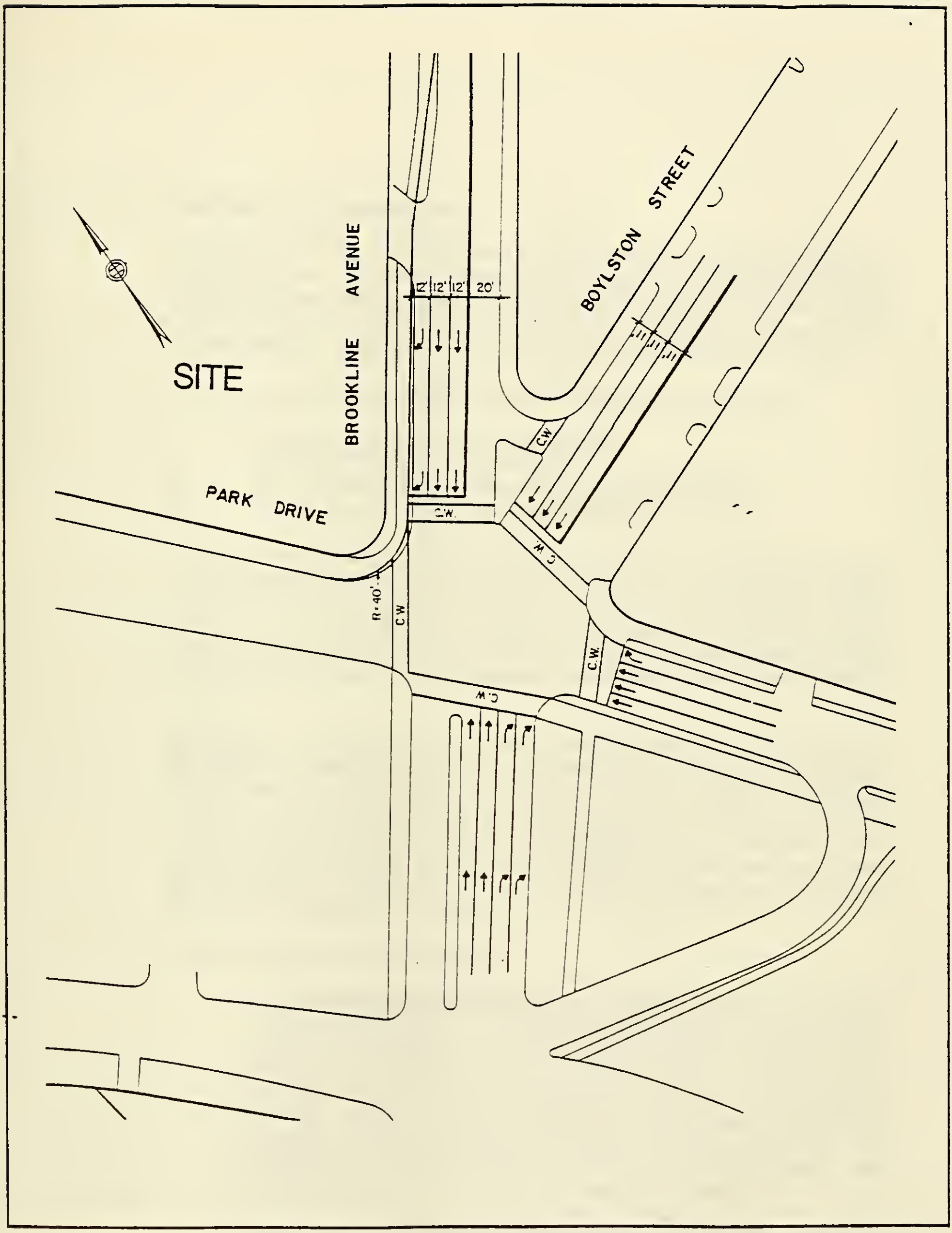
Level of Service Summary
Saturday Peak Hour

Figure 3-26



Proposed Plan for Audubon Circle

Figure 3-27



Proposed Plan for Brookline/Park Drive/Boylston

3.7 Alternative Circulation Plans

Introduction -- The Olmsted Plaza PIR/EIR devoted considerable effort to evaluating four alternative circulation plans that were suggested during the Scoping process affecting the entire Fenway and Longwood Medical Area . The PIR/EIR looked at each of these plans, developed a future traffic volume network, calculated Levels of Service, and presented the results.

The four alternative circulation schemes evaluated were as follows:

1. Pure rotary (around the "missing link")
2. Riverway/Park Drive T intersection
3. U.S. one-way couplet (Riverway/Brookline Avenue)
4. U.K. one-way couplet (Riverway/Brookline Avenue)

These alternatives are shown in Figures 3-29, 3-30, 3-31, and 3-32. Each is discussed below along with the conclusions of the PIR/EIR traffic analysis. In addition, the PIE/EIR evaluated a connection between Fullerton Street and Maitland Avenue running along the MBTA tracks. This connection was not pursued beyond the Olmsted Plaza draft PIR/EIR stage of the analysis, and has not been considered as part of any Fenway Plaza plans.

Discussion -- Of the four traffic pattern alternatives evaluated, only the two Brookline Avenue/Riverway one-way couplet systems appeared to have any traffic merit. In both cases, the effect would be to improve operating conditions in non-residential areas while decreasing operating conditions and increasing traffic volumes in residential areas. Because of the significant disruption to overall traffic operations in the area and other adverse impacts, neither of the two traffic pattern alternatives that showed potential were further evaluated.

The four alternatives were as follows:

The Pure Sears Rotary Scenario -- This alternative took the Sears island ("missing link") parking lot and converted it into a pure rotary. This require that Brookline Avenue be made one-way eastbound between the Riverway and Park Drive. There were, in fact, decreases in Levels of Service at most of the locations affected. Except for the intersection of the Fenway at Brookline Avenue, most other intersections were adversely affected. The PIR/EIR concluded that this scenario had "little merit" and recommended that no further consideration be given to it.

Riverway/Park Drive T Intersection -- This plan involved creating a T intersection out of Riverway and Park Drive in front of the Sears building and splitting the "missing link" down the middle with a roadway. The existing roadways and any leftover park land would be shifted to abut the properties on either side. The analysis showed that this plan improved only one location whereas two others were made worse. The PIR/EIR recommended that no further consideration be given to this plan.

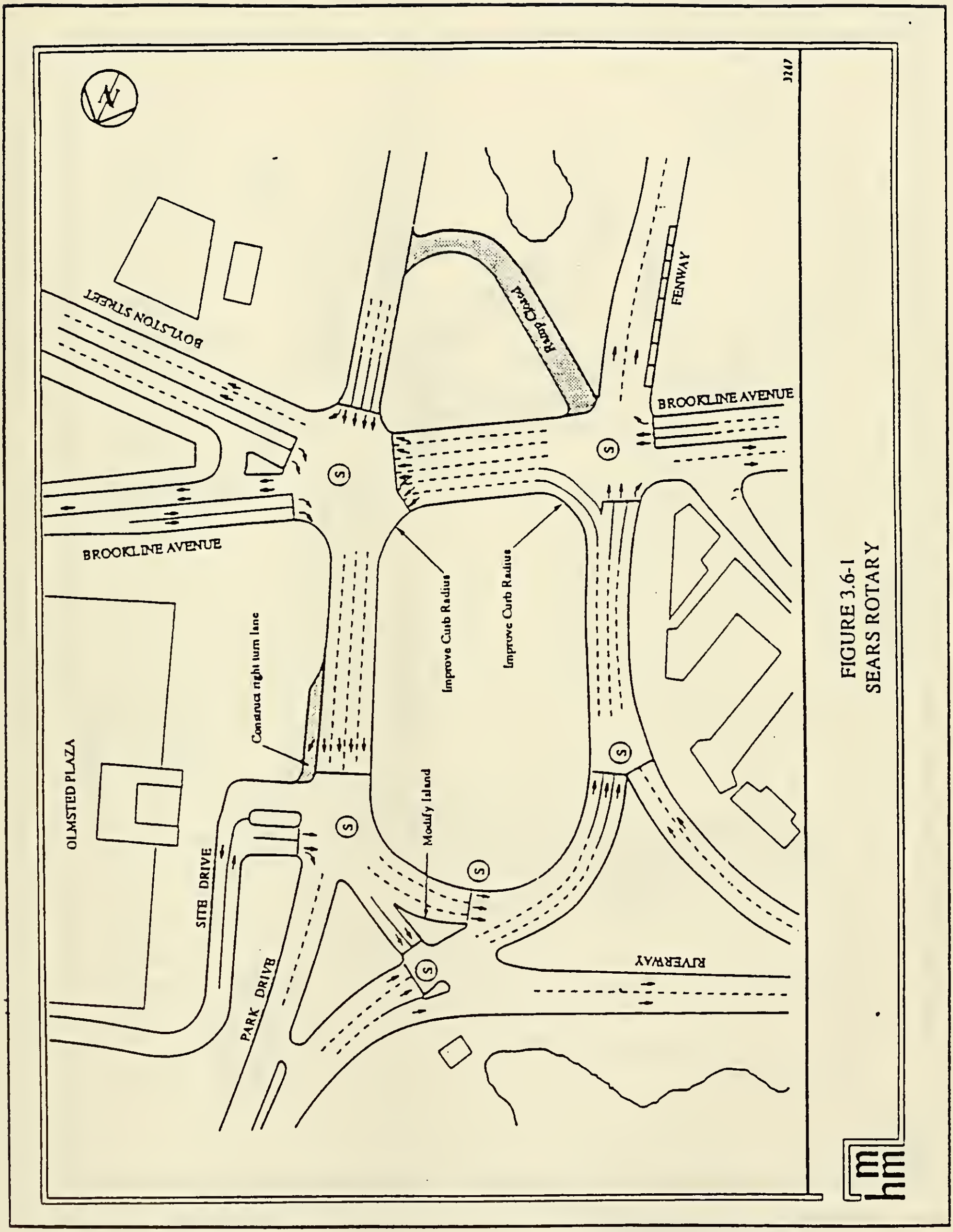
U.S. One-Way Couplet -- This created a one-way pair using the Riverway and Brookline Avenue. It was the conclusion of the PIR/EIR that there was not enough improvement with this design to recommend implementation because of its overall adverse implications. Essentially, the U.S. couplet design produced a trade-off in traffic impacts, with Brookline Avenue improving at the expense of the Park Drive/Charlesgate corridor. In particular, the report noted that the improvements would occur in non-residential areas with the declines in Levels of Service occurring in residential areas. The conclusion drawn was that this alternative provided no substantial traffic relief.

U.K. (British) One-Way Couplet -- This alternative created a clockwise one-way system using the Riverway and Brookline Avenue. This pattern appears to have the most potential for improving conditions in the area without necessarily creating off-setting negative impacts. The U.K. couplet improved Levels of Service at eight intersections, with three of these being rather significant. Conversely, there were significant reductions in Levels of Service at three intersections. Here, again, the question arose as to whether the large amount of disruption required to implement a "wrong way" couplet was worth the benefit that would result for this pattern. While traffic operating conditions in residential areas did not decline, the plan did increase traffic volumes traveling alongside residential areas.

Further evaluation of traffic pattern alternatives may be better addressed in the upcoming West Fenway/Longwood Transportation Management Strategies study. It is expected that this study will be undertaken by the City of Boston in mid-1994 and take about a year. That study will have as a base the traffic information from the Fenway Plaza project and will be able to incorporate such data in its planning activities.

Most important, however, is that the Fenway Plaza project does not create any potential obstacles to the development of any of the studied alternative traffic patterns or other patterns that may be looked at in the future. The project stays within its own property lines, relinquishes use of the "missing link" parcel, and essentially proposes mitigation that is achievable within the existing roadway network and within the existing right-of-way. No further evaluation of alternative circulation plans is pursued in this SPIR/NPC.

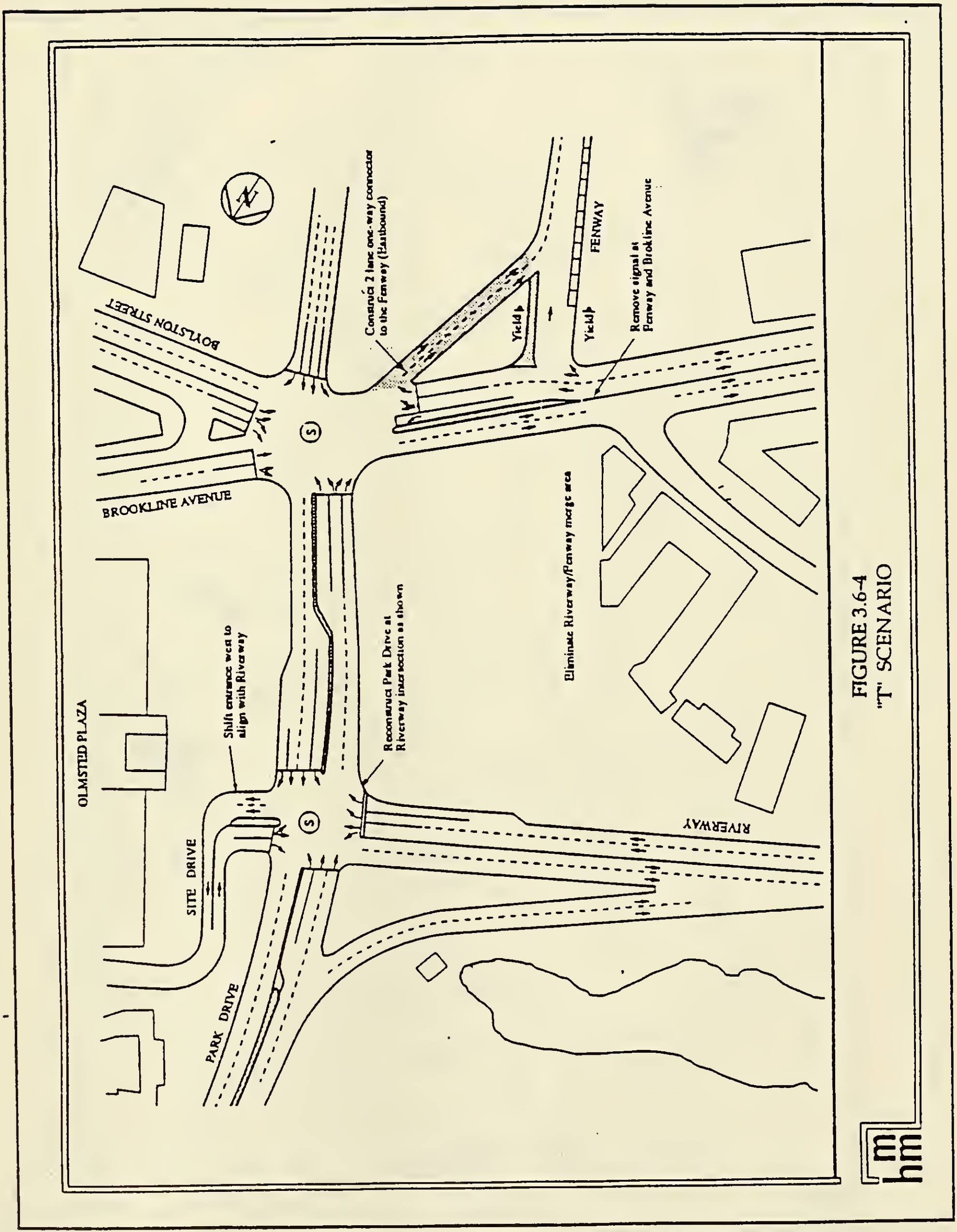
Summary - The PIR/EIR concluded that the best course of action was not to pursue any of the traffic pattern alternatives, but rather to concentrate on improving existing operating conditions using the traffic pattern now in place. This is the course of action being pursued by the current proponent.



Source: Olmsted Plaza PIR/EIR

Alternative Circulation
Sears Rotary Area

Figure 3-29



N
BOYLSTON STREET
BROOKLINE AVENUE
OLMSTED PLAZA
SITE DRIVE
PARK DRIVE
RIVERWAY
FENWAY
S
S
Yield
Yield
Construct 2 lane one-way connector to the Fenway (Eastbound)
Remove signal at Fenway and Brookline Avenue
Eliminate Riverway/Fenway merge area
Shift entrance west to align with Riverway
Reconstruct Park Drive at Riverway intersection as shown
hm

FIGURE 3.6-4
"T" SCENARIO

Source:Olmsted Plaza PIR/EIR

Alternative Circulation
Park Drive/Riverway T Intersection

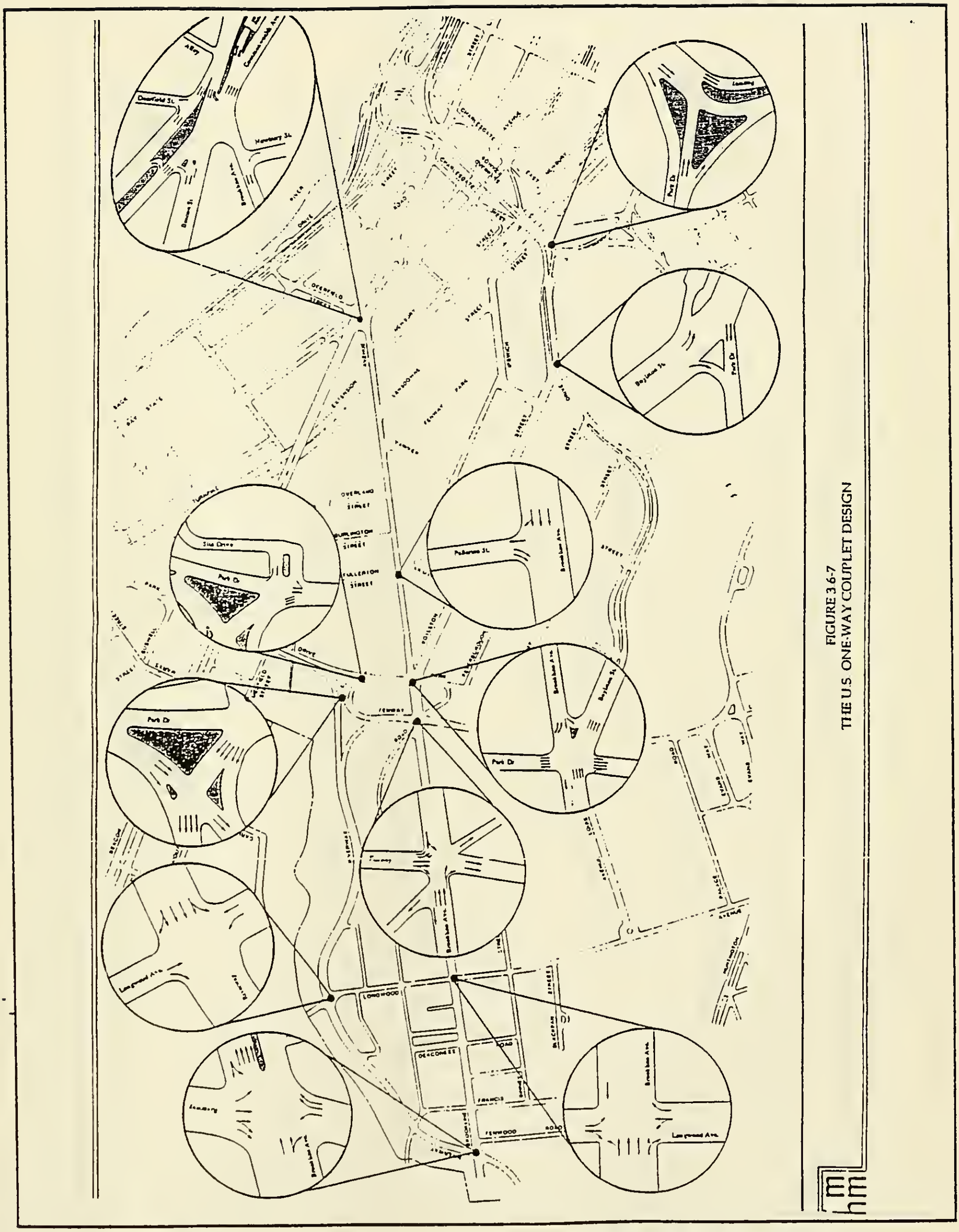
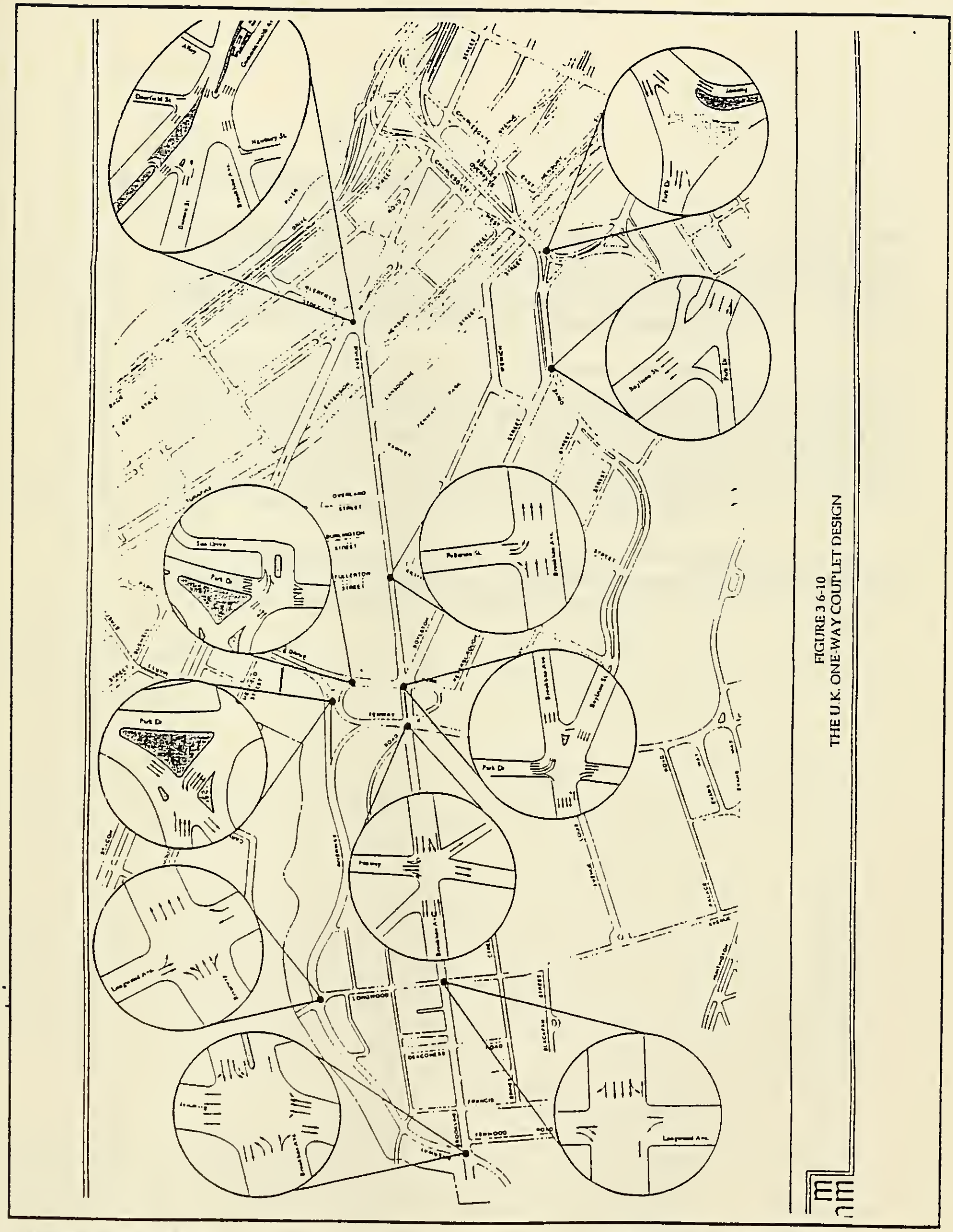


FIGURE 3.6-7
THE U.S. ONE-WAY COUPLET DESIGN

Source:Olmsted Plaza PIR/EIR

Alternative Circulation
U.S. One-Way Couplet

Figure 3-31



Source:Olmsted Plaza PIR/EIR

Alternative Circulation
U.K. One-Way Couplet

Figure 3-32

3.8 Traffic During Red Sox Events

The PIR/EIR studied seven intersections during a Red Sox's evening home game and analyzed the accumulative impact of event traffic with commuter traffic adjacent to the site. The study compared typical evening peak hour traffic with the peak hour conditions when a Red Sox event was occurring. The discussion from the PIR/EIR is included in Appendix 3.0.

Evening game times for the 1994 season are scheduled for 7:05 PM rather than 7:35 PM as in the past. Practically, the arrival of fans to Red Sox games should not change significantly. Fans typically arrive as quickly as they can after work; this should still be the case. The effect of the earlier game time will be that the average fan will now arrive closer to the start of the game. Thus, the conclusions of the PIR/EIR, namely that the peak hour is extended when there are Red Sox events, is still valid.

With respect to late night traffic, even with the earlier starting times, games will end after normal retail hours, therefore, the project will not have any effect on traffic conditions after Red Sox games.

3.9 Construction Traffic

Schedule

The construction period for Fenway Plaza will be much shorter than it would have been for Olmsted Plaza. Instead of a six-year staged construction period, Fenway Plaza would be built during a single phase covering approximately 14 months. The major components of construction involve:

1. Demolition of the low-rise portions of the site, as necessary.
2. Conversion of the existing Sears building to a garage.
3. Construction of the new retail area.

These elements would overlap with the garage remodeling and the new retail area construction coinciding for much of this time. The separate section of this SPIR/NPC on Construction Impacts (section 4.9) shows the schedule, assuming a start on August 20, 1994.

Construction Employee Trip Generation and Parking

Construction employment is expected gradually to increase and peak during months 6 through 11, with a gradual decline toward completion of the project at month 14. Although the project will create a total of about 1,200 construction jobs, at the peak of construction, an estimated 800 people will be employed.

In terms of modal split, it is expected that about 20 percent of construction workers would either walk or use public transportation, with the remaining 80 percent using automobiles. An occupancy rate of two persons per vehicle is expected based on the contractor's experience. Construction crews that work together often carpool.

It is expected that parking for approximately 300 to 400 vehicles during the peak construction period will be accommodated on-site in areas that are now free of buildings or within the garage portion of the project. The preparation of the basement parking area will be done first so that construction employees can park there. In any case, there is not expected to be any competition for off-site on- or off-street spaces by construction workers.

Construction-Related Truck Volumes

Truck traffic will vary throughout the construction period. During the initial phase of construction, the first three months, most trucks will be associated with removing demolition debris from the site. These will consist of trailer dump trucks carrying debris from the site and returning empty. During the demolition period, this is expected to amount to an average of 15 truck-loads per day.

Only a minor amount of earth work is anticipated, involving about 15,000 yards of excavation materials to be removed from the site. During this phase, about two months, the average day will require about 12 loads, with a maximum of about 20 per day.

Another component of truck operations will be cement trucks pouring foundations, walls and other structural elements for the new building. This will continue for a period of about seven months with a peak daily volume of about 200 yards or 20 trucks. Most days will experience five or fewer deliveries of cement.

The longest period of truck movements will be in the hauling of general construction materials to the site. This will involve structural concrete, bricks, and steel as well as other building components, including HVAC equipment, plumbing and electrical equipment and supplies. An average of ten trucks per day is expected during peak construction months from months four through 12. Not all of these will be large trucks. On peak days, this volume could double.

Finally, once the building is near completion, retailers will be fixturing and stocking shelves for the first time. During this phase, which will occur at the very end of the construction period, approximately eight trailer-trucks per day will approach and depart the site. This will occur over the relatively short period of about one month, mostly after construction activity has ebbed.

Overall, the project will begin by generating about 25 truck-loads of debris or earth per day. During the middle part of the schedule, deliveries will average about 30 truck-loads per day and taper off toward the end of the project. There will be a spurt at the end when retailers are stocking up for the first time.

Truck Routes -- The proposed truck routes are shown in Figure 3-33. It is expected that trucks will be limited to certain routes with specific exclusions from all others. The proponent has been very successful in other projects in posting and enforcing truck routes so that trucks avoid residential and other sensitive neighborhoods. In the Fenway area, there are already existing truck restrictions which now limit approach and departure routes. Most of the construction access will occur on the Fullerton Street and Brookline Avenue sides of the project so that the need for access via Park Drive is minimized. It is expected that all trucks will arrive and depart on existing commercial roadways where trucks are allowed.

The proponent will abide by any truck route restrictions imposed by the City and/or the MDC.

Street and Sidewalk Closures

Because the site can accommodate nearly all construction activities including staging, very little, if any, street or sidewalk closure is expected. The pedestrian flow along Fullerton Street, which is on the opposite side of the street, will not be affected, nor will the sidewalks on the opposite side of Brookline Avenue or on Park Drive. The sidewalk on Brookline Avenue adjacent to the site is not scheduled for closure, but should this become necessary, pedestrians could cross to the opposite sidewalk which will be unaffected.

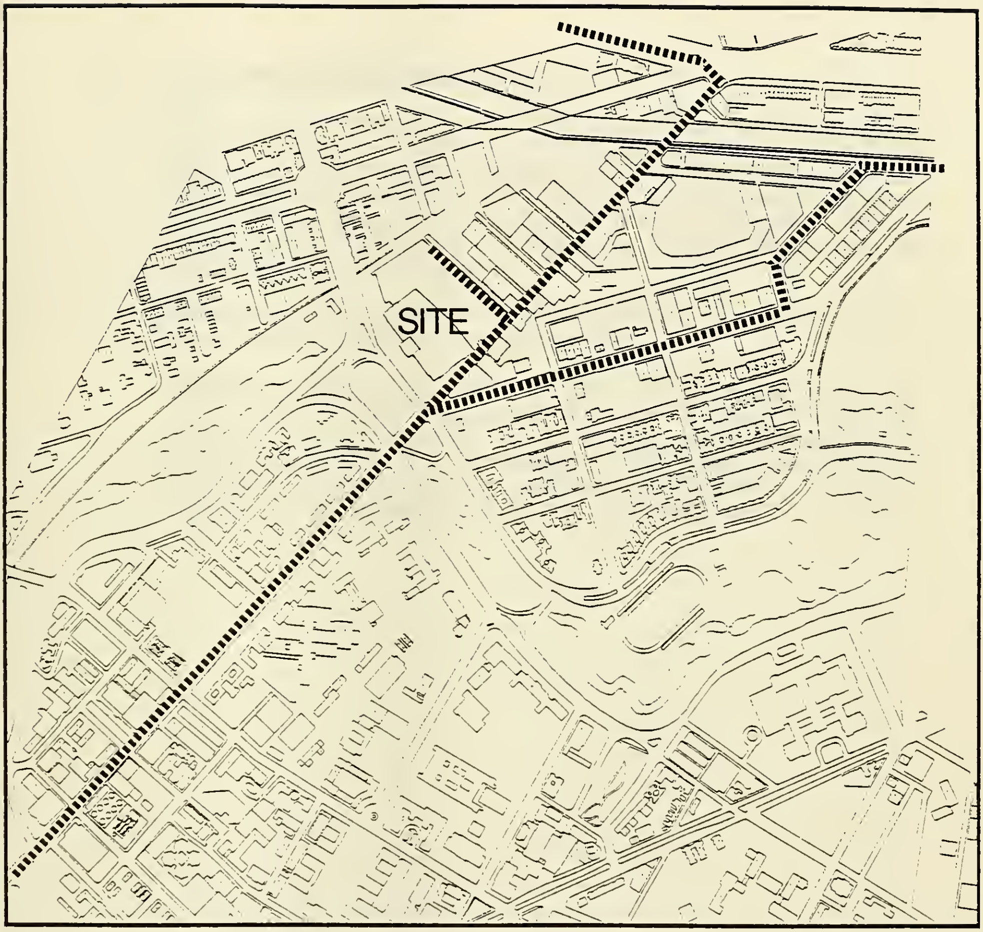
No street closings are expected as part of the site work. There may be some curb lane restrictions on adjacent streets when construction takes place on the face of the project. Any lane closures will be coordinated with the City and the MDC, as required.

Public Safety

As a public safety provision during the proposed construction, police officer traffic control will be used as necessary. The need for police officers will be determined jointly with the BTD. Detail officers on assignment in the construction zone will be responsible for maintaining a safe and orderly flow of vehicles and pedestrians, as well as responding to events as necessary. Access to the construction areas will be limited by perimeter controls, such as temporary construction fencing. Easily understandable signage will be provided to ensure safe pedestrian routing around the site.

Liaison

The proponent will designate an on-site representative as the primary contact to work with all public review agencies and the surrounding businesses and communities during the construction period. The liaison will ensure coordination with other development projects and will provide construction information, as required. This individual will also be readily available to receive and act upon complaints associated with construction. The role of the liaison is to enable the construction to run as smoothly as possible by providing a contact for resolution of any issues which may arise.



Proposed Truck Routes

3.10 Transportation Monitoring Program

The proponent will maintain a traffic monitoring program containing several elements. All inbound driveways will have embedded vehicle detectors connected to traffic counting devices. This will provide 24-hour inbound traffic volume data on a continuing basis. This information would be available as necessary. (Detailed data from CambridgeSide Galleria used in the Trip Generation section was obtained from exactly the same kind of installation at that location.)

Information on monthly **T** passes sold would be collected by the management office and would also be available.

Information would also be kept on the amount of on-site employment and on the extent to which employees are using **T** passes. The Mall management would also conduct annual surveys to determine employee and customer modal split. The site management office will also keep a record of all transit promotions and other transportation coordination efforts that have been developed both for employee and customer travel.

3.11 Public Transportation

Introduction

The project, located adjacent to Fenway/Riverside Line MBTA station, is in a position to capitalize on MBTA accessibility. In addition, the project will incorporate certain on-site elements to enhance the use of the station for users beyond the site. The creation of definitive pedestrian corridors through and alongside the site will not only provide a positive environment for maximizing site-related transit use, but will also make the station more accessible to other transit users in the area. The same rationale applies to bus service that runs along both the Park Drive and Brookline Avenue frontages.

MBTA Green Line Service

Existing Conditions -- The original Olmsted Plaza PIR/EIR presented considerable information on MBTA Green Line conditions, service levels, Fenway station passenger volumes, and capacity data related both to the Fenway station and the Green Line. Overall, the station was operating at about 40 percent of its capacity (43 percent inbound during the morning peak hour and 39 percent of capacity outbound during the evening peak hour). The Green Line D branch (Riverside Line) also has substantial available capacity. However, the main line stem between Kenmore Square and Arlington Street constituted the real bottleneck on the line. The PIR/EIR noted that this section was operating at about 90 percent of its capacity during peak hours. These conditions appear to be still relevant today: there continues to be available capacity on the Riverside line and at Fenway station and the most critical section of Green Line is still in the tunnel section on the downtown side of Kenmore Square.

Project Impacts - The Fenway Plaza project will produce fewer transit trips than Olmsted Plaza would have produced during peak hours for several reasons. The project is much smaller, containing about one-third of the floor area previously approved; the project is not employee-intensive -- most trips will be made by customers, not by employees; and the proposed land use is a less intensive generator during normal commuter hours.

Retail employees do not normally travel during the morning and evening commuter peak hour time periods. During the morning peak hour, transit trips by retail employees will be negligible. With the possible exception of the proposed supermarket, the stores will not open until after 9:30 AM, after the morning rush hour. Even if the supermarket is open earlier, few transit or other trips are expected at that time. The evening peak hour is also not a significant transit trip generator for employees because retail shifts generally change before the peak. Typical shopping center hours of 10:00 AM to 9:00 PM require two shift operations with employees coming and going at non-peak hours.

Proximity of the Fenway station to the site is a very attractive feature for many people. The entrance to the building will be approximately 250 feet from the entrance to the T station and most of the walk will be under cover. Many retail jobs are held by part-timers, including students and homemakers who are available during the middle part of the day and in the evening. Retail jobs also tend to have a relatively small sphere of attraction. They are often filled by people who live close by or who are able to reach the site quickly and easily for shift times that are not typically 9:00 AM to 5:00 PM. At CambridgeSide Galleria, about 75 percent of all employees use public transportation. The percentage of part-time employees using transit is even higher.

For this site, employees are expected to arrive and depart the site with a modal split estimated at 25 percent by automobile, 35 percent by transit, and 40 percent by walking.

It is anticipated that a smaller percentage of customers will use transit as compared to employees, however, there are more customer trips overall. The customer modal split is estimated at 40 percent automobile, 20 percent transit, and 40 percent walking. Many customers will be expecting to purchase goods either in quantity or in sizes that are not easily transportable on the T. These trips will be made by auto. However, there are several categories of trips that will be by transit. People who live on the Riverside Line who use an MBTA pass will find the supermarket a convenient and efficient place to shop. This group will include people with passes and seniors who receive a T discount. The adjacent T station provides an opportunity for people to shop at the project who do not have ready access to a car or who would find a T trip more efficient even if they do have a car. The supermarket at this location will probably be closer to a T transit station than anywhere in the metropolitan area.

Appendix 3.0 contains a memorandum report dated March 30, 1994 entitled Fenway Plaza Traffic Analysis. Trip Generation Factors -- Vehicle Occupancies/Modal Splits which provides documentation of the modal split analysis. Based on this material, the project will generate 514 transit trips, 257 inbound and 257 outbound trips during the evening peak hour. Of these, 79 will be associated with employees and 435 with customers. Many home-bound customers will arrive from work by transit, patronize stores in the project, and leave for home on foot.

On Saturdays, transit trips by customers are expected to be lower than at other times. More people have access to an automobile on the weekend, traffic volumes are lower, and traffic delays are shorter. The Saturday afternoon shopping excursion is more than just a perfunctory/utilitarian trip. It has a socio-recreational purpose for which transit use may be less practical.

Bus Service

Existing Conditions -- Several bus routes serve the site and the PIR/EIR contained an elaborate analysis of each one, including load factors, capacity, and passenger counts at bus stops near the site. The only bus route with more than one or two passengers using a stop at the site was #47 (Cambridge/Ruggles). Buses on this route had a peak hour occupancy of about 47 percent, higher than other buses on other routes serving the site. Thus, capacity was not an issue insofar as bus service is concerned. Bus routes along Brookline Avenue, which are focused on Kenmore Square, have few passengers who board at this location and have lower occupancies. This may be because the Green Line parallels this section of those routes.

More important to the operation of the site is the location and condition of bus stops that serve the site. There is a bus stop on Park Drive at the entrance to the site which is the most important one insofar as serving the site is concerned. The Mitigation section proposes a new shelter at this location. However, enhancement of bus access on the Brookline Avenue side of the site will also be beneficial and two additional bus stop shelters are proposed here also.

Project Impacts -- The project will not have a significant effect on bus loadings. Route 47, a circumferential route has available capacity to service the site. Proposed changes to circumferential bus service would probably enhance service to the site. However, the impact of the project will not be sufficient to change route operations. Improvements to the site-related bus service are proposed and are discussed below.

Public Transit Mitigation Plan

Green Line Transit Mitigation -- Most transit mitigation will be associated with improvement of access to the Fenway **T** station. Several individual improvements can be made to improve the quality of the station both for project users and for the general public. The following is a list of improvements that the proponent would undertake:

1. Installation of new lighting on the approaches to the station that are within or adjacent to the site.
2. Construction of a "gateway" to the station that is visible, attractive, and suitable as a focal point for pedestrians using the station.
3. Installation of a kiosk for posting schedules and handbills.
4. Improvement of the existing stairwell serving the station.

Bus Transit Mitigation

1. Provision of a bus stop shelter at the stop on Park Drive. This location will also be connected by a sidewalk on site property to the Fenway Green Line station. (See On-Site Pedestrian Mitigation.)

2. Provision of an outbound bus stop shelter at a new location to serve the mall entrance near the corner of Brookline and Fullerton. This will also serve HCHP.

3. Provision of bus stop shelter on the south side of Brookline Avenue for inbound passengers.

4. Posting of bus schedules and route information in the mall.

On-Site Transit Inducement Program

1. Selling of MBTA passes to the general public within the mall.

2. Encouragement of tenants to subsidize MBTA passes for their employees.

3. Provision of a prominent location for the display of MBTA pass information and sales, schedules, and route information.

4. Designation of a full-time on-site mall management employee as Transportation Coordinator. This person would be the liaison between the mall and its tenants and between the mall and other nearby institutions and the City.

5. Provision of an on-site taxi stand with a telephone connection to a local cab company.

3.12 Pedestrian Circulation

Introduction

This section addresses on-site and off-site pedestrian issues as well as bicycle access. The site itself occupies a keystone location insofar as local pedestrian circulation is concerned and the project itself will be an important generator of pedestrian trips. In addition, the site is adjacent to the Fenway **T** station which is an important local pedestrian destination. Thus, the treatment of pedestrian circulation into and through the project is of major consequence. In addition to circulation into and through the site, the satisfaction of pedestrian demand at major intersection crosswalks is the second critical element of this analysis. Except for those who walk between the Fenway **T** station and the site, other pedestrians going to this site and the **T** station must at the very least cross at the busy intersections comprising the Sears rotary.

The PIR/EIR focused attention on sidewalk and crosswalk capacities. It found that in all cases, pedestrian facilities in the area are at excellent Levels of Service, with most of them at Level of Service A and none below Level of Service B. Area sidewalks and crosswalks are quite adequate in terms of width and capacity to handle the volumes of pedestrians that exist and are projected for the area and there is no jostling for position on the sidewalks. The real concern is the creation of safe and efficient routings, particularly at high traffic volume intersections. The remainder of this section focuses on identifying the important pedestrian routes and proposes modifications and improvements that will enhance pedestrian circulation, making it easier and safer.

Pedestrian Traffic Volumes

Some idea of pedestrian volumes is useful in evaluating concepts and proposals. Where intersection pedestrian counts were done in 1994 for this report, it was found that pedestrian volumes were lower than those reported in the PIR/EIR which was done in 1989. This is probably because the 1994 counts were made in the winter when pedestrian volumes are lower. There have been no significant changes in land use in the area since the PIR/EIR was completed, so there have probably not been any great changes in pedestrian patterns or volumes since then.

Figures 3-34, 3-35, and 3-36 show the morning, noontime, and evening peak hour pedestrian volumes in the area. The data has been taken from the PIR/EIR, but is considered representative of existing conditions. Their primary purpose is to identify the important pedestrian routes and street crossings. As noted above, the volumes of pedestrians is less of an issue than properly accommodating the major walking routes.

Major Pedestrian Routes - Based on a review of the pedestrian volumes and on observations of pedestrian movements during the peak hours, it becomes apparent that there are a few major pedestrian movements in the area as well as more general minor movements that are less subject to route definition. The following is a list of the major pedestrian routes through or in the immediate vicinity of the site. Figure 3-37 shows these routes.

1. Fenway T to Beacon Street
2. Brookline Avenue, East Side (Boylston Street side)
3. Fenway T to Boylston Street
4. Fenway T to Fullerton/HCHP
5. Beacon Street to Brookline Avenue
6. Fenway T to Longwood Medical Area

The lack of pedestrian route definition through the site and the general lack of pedestrian route clarity off-site results in a scattershot pedestrian pattern that needs to be addressed. It is common to watch pedestrians leave or approach the T station and walk randomly across the missing link parking lot and the major roadways.

Site-Generated Pedestrian Traffic - Pedestrian and transit trip estimates are based on a modal split analysis similar to what has been used in the PIR/EIR. Using modal split for non-automobile trips results in conservatively higher volumes for each of the modes. Appendix 3.0 contains a memorandum report dated March 30, 1994 entitled Fenway Plaza Traffic Analysis, Trip Generation Factors -- Vehicle Occupancies/Modal Splits which provides documentation of the modal split analysis.

The estimated pedestrian and transit-pedestrian trips associated with the project are as follows. During the evening peak hour, the total pedestrian trip generation is projected to be 883 persons. Of these, 90 would be work trips, and 793 would be supermarket and other retail customers. While some transit trips are expected to arrive and depart via bus, most transit-pedestrian trips will be associated with the Green Line station.

Figure 3-38 shows the expected routings of pedestrian trips to and from the site. The major routes are as follows:

1. Park Drive coming from Audubon Circle
2. Brookline Avenue from the direction of the LMA
3. The Boylston Street commercial and residential area
4. Brookline Avenue north (HCHP)
5. Miner Street/Beacon Street via Miner Street overpass
6. From Fenway T station
7. From Riverway

Off-Site Pedestrian Circulation -- As noted above, there are a number of important pedestrian movements that skirt the site that should be enhanced and accommodated in connection with any traffic work done at nearby intersections. In particular, the crossings at the intersection of Brookline Avenue at Park Drive are difficult and represent some of the higher volume movements in the area.

The largest single off-site pedestrian flow appears to be along the south side of Brookline Avenue crossing the Fenway, Park Drive and Boylston Street. This movement currently involves crossing five roadways. Essentially, there are two primary intersections, Brookline Avenue at Fenway and Brookline Avenue at Park Drive/Boylston. Each of these has been looked at individually.

Off-site pedestrian accommodations are proposed in connection with intersection modifications that involve lane use and signal timing but have not been itemized. It should also be possible to make modifications as part of intersection improvements to improve the safety and convenience of pedestrian crossings, such as ramps, signs, and signals.

Proposed Mitigation

Objectives of On-Site Mitigation -- Figure 3-39 represents a proposed on-site circulation plan showing key elements of a planned pedestrian network. This on-site circulation program accomplishes several objectives:

1. It brings **T** customers directly into the retail area, particularly to the supermarket which will be a major attraction for local residents. The distance from the **T** station to the entrance to the supermarket will be about 250 feet, most of which will be under the protection of a canopy.

2. It will bring pedestrians from the Park Drive/Audubon Circle area into the site.

3. It will provide access to the retail area to and from the LMA area. This is likely to be one of the busiest routes, both in terms of local residents and daytime population.

4. It will serve people arriving and departing from the direction of Kenmore Square, and those heading for the HCHP complex as well as for the businesses and residences in that direction.

Proposed On-Site Pedestrian Mitigation -- A series of integrated on-site improvements are proposed to significantly improve pedestrian circulation, both from a qualitative and safety standpoint. The proponent will incorporate the following items in the site work:

1. Construct a walkway from the Fenway **T** station to the Park Drive sidewalk.

2. Provide a defined walkway between the Fenway T station and the entrance to the supermarket.

3. Provide stairs from the Park Drive sidewalk to the retail entrance.

4. Provide new crosswalk markings at the Park Drive main entrance.

5. Install new lighting along all on-site pedestrian routes.

Proposed Off-Site Pedestrian Mitigation -- The following elements form the nucleus of the off-site pedestrian improvement program offered by the proponent.

1. At Brookline Avenue/Park Drive/Boylston, narrow the right-turn roadway from Boylston Street to Brookline Avenue with the additional area added to the existing triangular island. This island will be landscaped with provisions for pedestrians. A pedestrian push-button will also be installed on the island.

2. Redirect crosswalk on Brookline Avenue to focus on the intersection of Brookline Avenue and Park Drive. This will provide a more direct route for pedestrians that does not encourage walking through a parking lot.

3. Modify the sidewalk at the corner of Brookline Avenue and Park Drive to facilitate the pedestrian routing from Park Drive to Boylston Street.

4. At Fenway/Brookline Avenue, retime signals to provide advance westbound green time on Brookline Avenue. This will provide a non-conflict crossing of the Fenway and the U-turn roadways.

5. Time other signals as possible to allow adequate crossing time for pedestrians. In most cases, crossings can be made unconflicted while certain traffic movements are occurring.

6. Upgrade pedestrian pavement markings and signing along the perimeter of the site.

7. Repair or replace sidewalks as needed along the site perimeter.

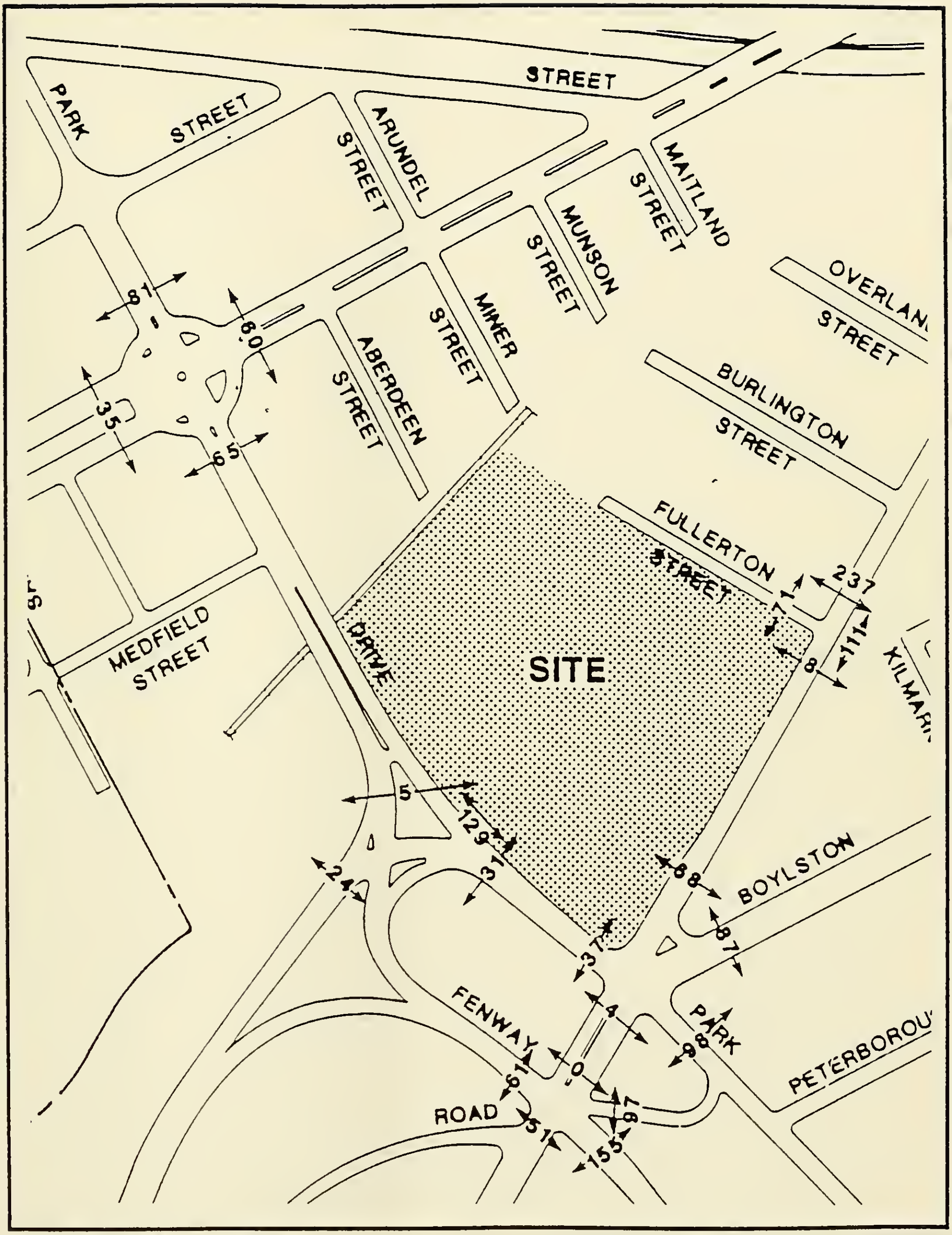
9. Provide suitable lighting for all adjacent pedestrian routes along the perimeter of the site.

Bicycles -- No specific estimate of bicycle trips to the site has been made, however, it is expected such trips will be made on a regular basis. Accordingly, provision will be made for bicycle racks at appropriate locations.

Proposed Bicycle Mitigation

1. Provide bicycle racks at the entrance to the supermarket and at the main entrance to the mall stores.

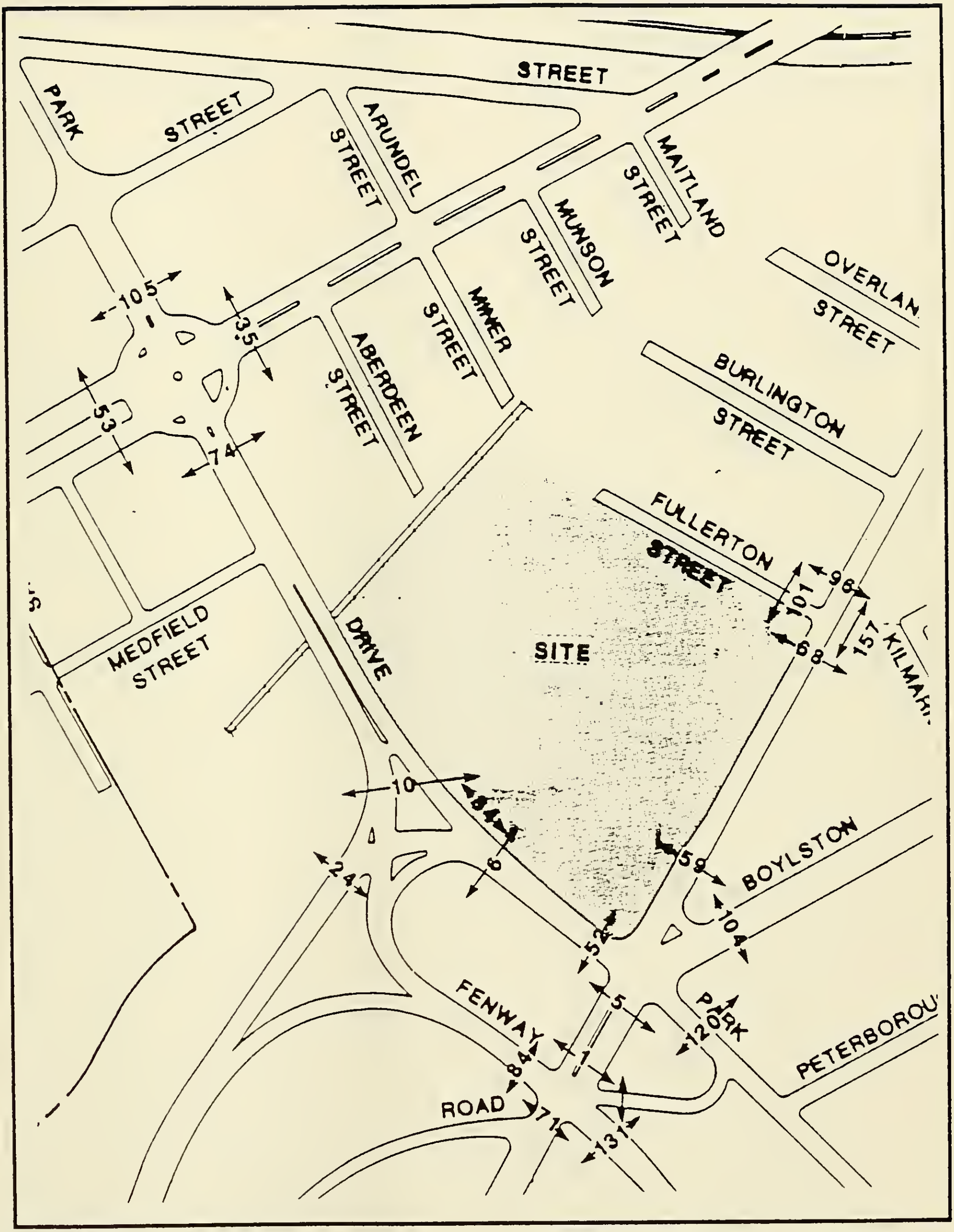
2. Both locations will be protected from the weather.



From Olmsted Plaza E.I.R.; fig 3.12-1 by HMM.

AM Peak Hour Pedestrian Volumes

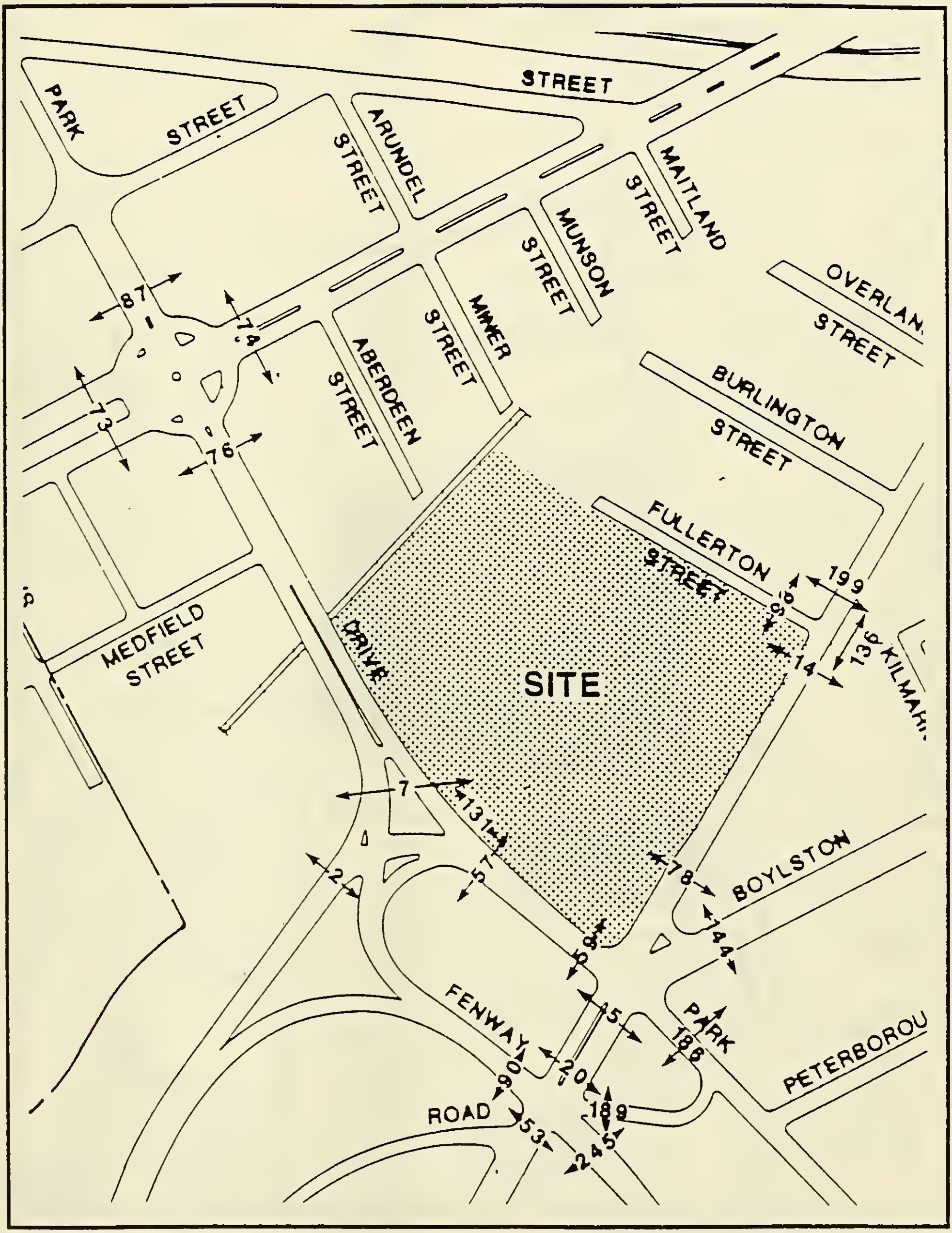
Figure 3-34



From Olmsted Plaza E.I.R.; fig 3.12-2 by HMM.

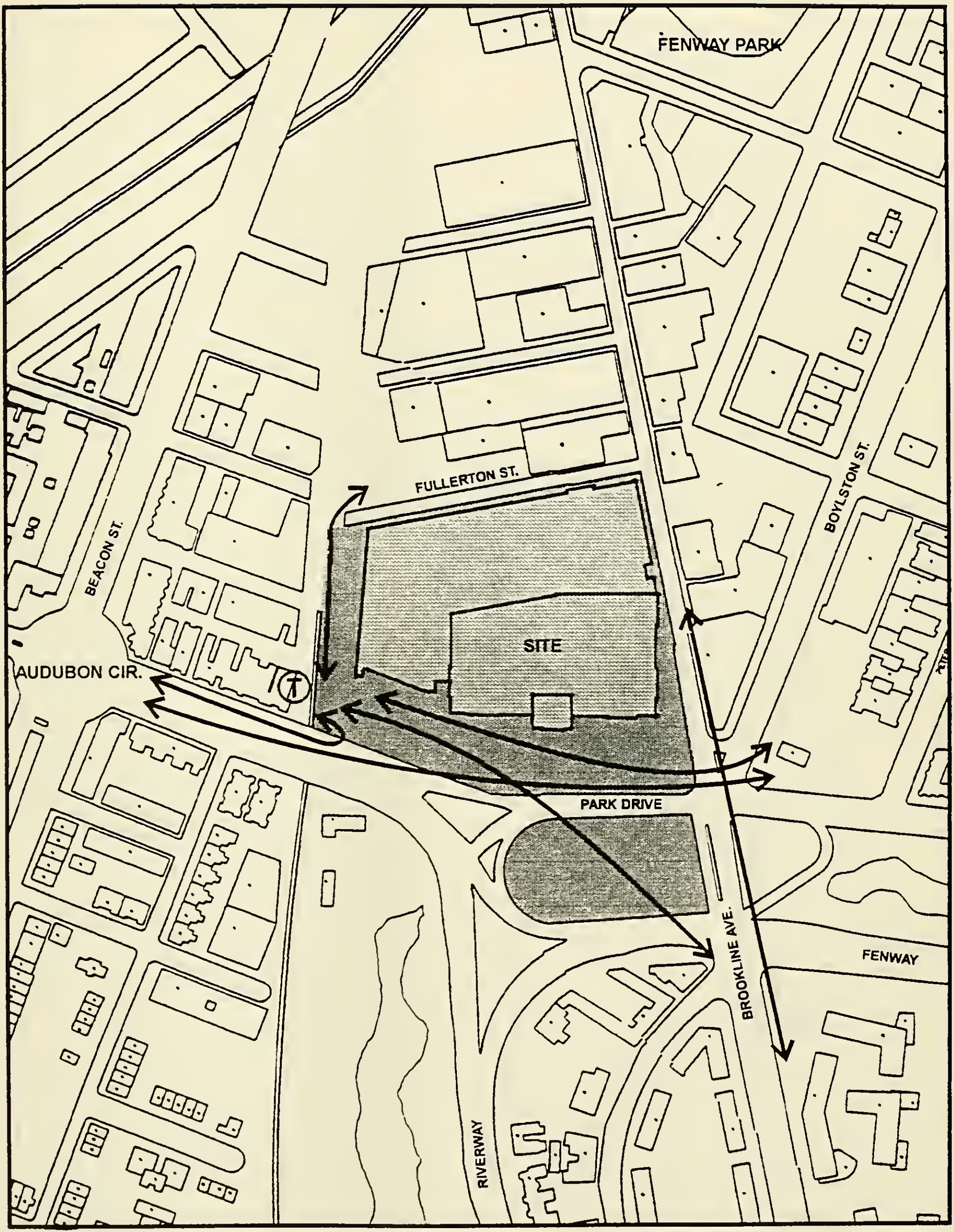
Noon Peak Hour Pedestrian Volumes

Figure 3-35



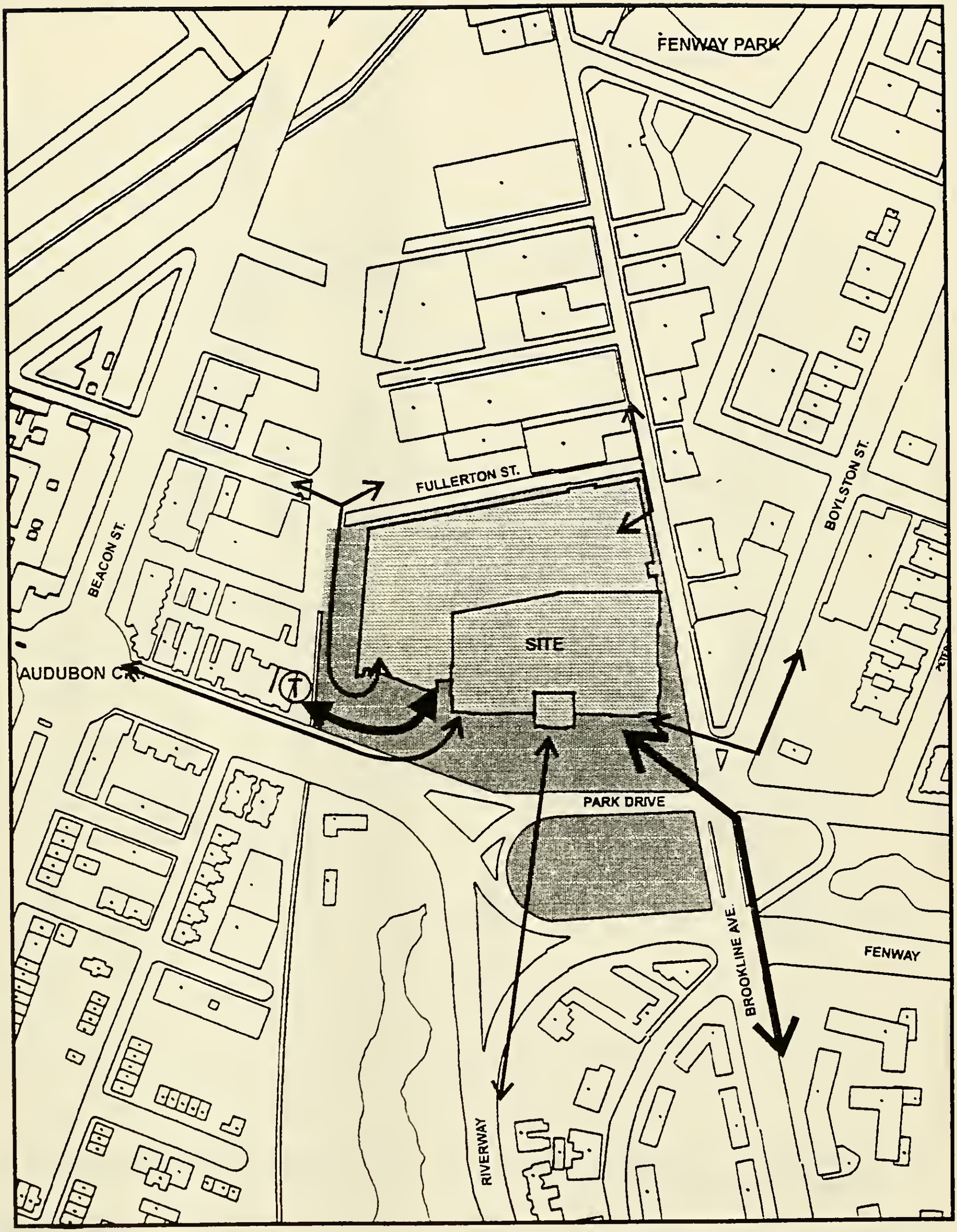
From Olmsted Plaza E.I.R.; fig 3.12-3 by HMM.

PM Peak Hour Pedestrian Volumes

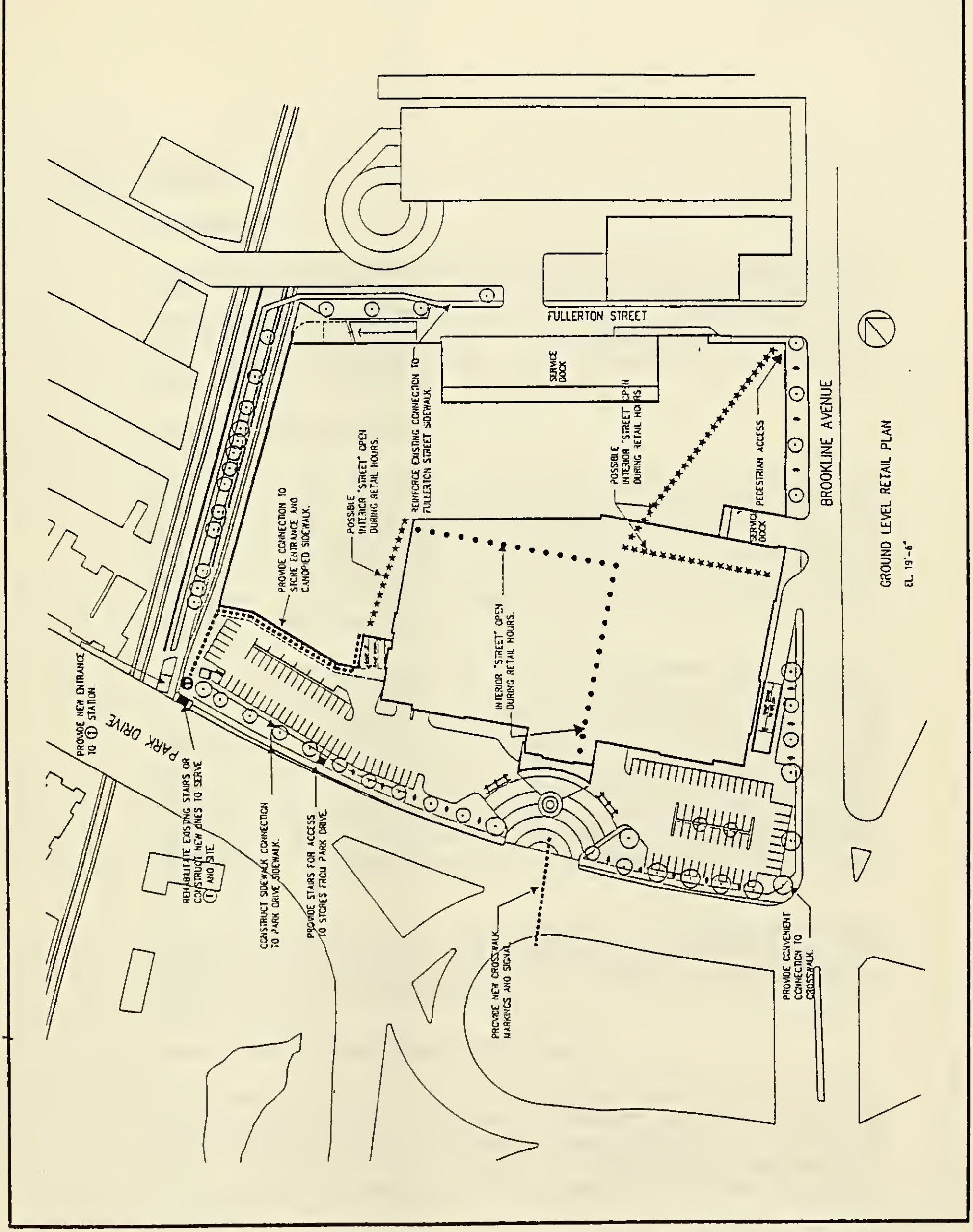


Established Pedestrian Routes

Figure 3-37



Pedestrian Routes To/From Site


FULLERTON STREET
SERVICE DOCK
BROOKLINE AVENUE
GROUND LEVEL RETAIL PLAN
EL. 19'-6"
PEDESTRIAN ACCESS
POSSIBLE INTERIOR "STREET" OPEN DURING RETAIL HOURS
SERVICE DOCK
INTERIOR "STREET" OPEN DURING RETAIL HOURS.
REINFORCE EXISTING CONNECTION TO FULLERTON STREET SIDEWALK.
POSSIBLE INTERIOR "STREET" OPEN DURING RETAIL HOURS.
PROVIDE CONNECTION TO STORE ENTRANCE AND CANOPIED SIDEWALK.
PROVIDE NEW ENTRANCE TO Ⓣ STATION
PARK DRIVE
REHABILITATE EXISTING STAIRS OR CONSTRUCT NEW ONES TO SERVE Ⓣ AND SITE
CONSTRUCT SIDEWALK CONNECTION TO PARK DRIVE SIDEWALK.
PROVIDE STAIRS FOR ACCESS TO STORES FROM PARK DRIVE
PROVIDE NEW CROSSWALK MARKINGS AND SIGNAL
PROVIDE CONVENIENT CONNECTION TO CROSSWALK.

On-Site Pedestrian Mitigation

Figure 3-39

3.13. Parking

Introduction

An extensive parking survey was conducted as part of the original PIR/EIR, which included both on- and off-street spaces within the study area. Particular attention was given to space occupancy throughout the day at both metered and unmetered spaces. This section summarizes the data in the PIR/EIR and discusses Fenway Plaza's parking supply and demand and impact on parking conditions.

Review of Previous Study

The PIR/EIR found that total parking space occupancy in the area remains relatively constant throughout the day, increasing in the evening after 5:00 PM. This pattern was thought to be the result of off-street and curb spaces that are used by residents and/or by ball-game parkers. The occupancy of all metered spaces in the study area never reaches its total capacity of about 300 spaces. This is probably because some spaces are in locations where there is limited demand for short-term parking.

The non-metered curb supply of 529 spaces also never fully reaches 100 percent occupancy during the course of the day, with maximum accumulations of under 500. (An occupancy rate of 90 percent may be considered to represent "practical capacity" for a parking facility.) Here again, there is an increase at about 5:00 PM, possibly caused by residents returning home. The total existing on-street parking supply of 832 spaces, including both metered and unmetered spaces, is utilized to 86 percent of its capacity over the course of the day. Nevertheless, some highly desirable curb faces are operating at over 100 percent of capacity because of illegally parked cars.

Off-street spaces totalled 956 in seven parking lots. Exclusive of ball-game demand, the off-street spaces experienced a 74 percent utilization rate. It is apparent from field observations that some off-street parking facilities are filled only during Fenway Park events.

Fenway Plaza Parking Supply and Demand

The Fenway Plaza project will be completely self-sufficient for parking. The project's demand for both long- or short-term parking will be handled totally by on-site spaces. The Fenway Plaza parking supply will be 2,480 spaces. Of these, 1,450 will be devoted to supporting the retail portion of the project and the remaining 1,030 spaces would be used for monthly parkers.

The parking ratio for the retail area amounts to 3.2 spaces per 1,000 square feet which is projected to satisfy the peaks experienced during the Christmas season, and is more than adequate at other times of the year. Normally, shopping centers require a parking ratio of 4.5 to 5.0 spaces per 1,000 square feet of gross leasable area. However, at this location, which has a sizable walk-in and transit use potential, a lower parking ratio is indicated.

The 1,450 space retail parking supply is based on the requirements of prospective retailers. These spaces will be devoted to retail use exclusively on a full-time basis, with strict controls to prevent use by others. For comparison, CambridgeSide Galleria has a retail parking ratio of 3.9 spaces per 1,000 square feet. Except for a few days during the Christmas season, that garage is rarely filled. The Fenway Plaza site is expected to attract many more pedestrians and transit users, and the parking ratio required by retailers is in part a reflection of the experience at CambridgeSide Galleria. The Fenway Plaza project has a somewhat different retail mix and is in a more urban location which accounts, in part, for the difference.

In addition to the dedicated retail spaces, there will be 1,030 spaces limited to monthly parkers. This supply is fixed and will not increase. As noted above, the retail spaces are dedicated and will not be used to increase the monthly parking space supply even if it is determined that those spaces are not regularly filled. Strict controls will be implemented to ensure that the retail parking spaces are fully available for retail use at all times. This is discussed below.

In comparison to the Olmsted Plaza project, the Fenway Plaza project will have far less impact on parking conditions in the area. The Olmsted Plaza project had a parking demand of over 1,900 spaces but was supplying only 1,100 spaces on-site to accommodate that demand. An additional 500 spaces were to be provided in an off-site lot but there was still an anticipated unmet demand of about 300-to-400 spaces.

The Fenway Plaza project is not expected to impact the local existing parking supply either on- or off-street, and will provide some additional monthly spaces for daily users. All parking demand will be met on-site where there are adequate spaces to accommodate the entire project.

In regard to the monthly parking supply, it should be noted that of the 1,030 spaces that are part of the project, about 700 already exist and are in use at the present time. The two existing lots, one located on the "missing link" parcel and one located on the site, are currently licensed for a total of 569 spaces, but a field survey shows that about 700 spaces are now available for parking.

The only proposed changes to parking not directly on the site would be the elimination of about 15 metered spaces on Brookline Avenue along the site frontage and a few spaces on the opposite side of Brookline Avenue between Park Drive and Fullerton Street. The exact amount will depend on the final configurations of roadway improvements at Fullerton Street and Park Drive. The purpose of eliminating any spaces would be to increase intersection capacity at Brookline Avenue/Park Drive and at the Brookline Avenue/Fullerton Street intersection.

Parking Controls

All on-site parking will be controlled so that parking spaces are used in accordance with their intended purpose. It is critical to the success of the retail portion of the project that those spaces dedicated to supporting the retail portion of the project be available at all times to serve that purpose.

The retail spaces will be controlled by automatic and manned parking gates through which all incoming and out-going vehicles must pass. There will be a nominal charge for parking in the retail parking area, however, some merchants will probably participate in some type of validation program to encourage legitimate shopper-parkers. The structure will be designed to provide low cost parking for retail users but gradually escalating costs for longer term parking. The intent is to use the parking fee structure as a control mechanism for preventing use of the retail area by non-retail parkers. A similar system has been in effect at CambridgeSide Galleria and experience there will be used in refining the procedures to be used here.

The monthly parker area will be located on the upper floors of the parking garage, separate from the retail spaces and will be serviced by a separate entrance. Access and egress will be controlled by card operated gates that will limit access to those with passes.

Construction Parking

As described in the section on Construction Impacts, all construction parking will be confined to the site, since there is ample room on the site to accommodate all such parking demand. If necessary, portions of the garage will be made available early in the construction schedule to accommodate all construction period requirements.

3.14 Mitigation Summary

This section is a compilation of mitigation measures detailed in the individual parts of the Transportation Section. In all cases the proponent would be responsible for implementing these improvements subject to the necessary approvals. There may be some overlap between traffic related and pedestrian related mitigation where intersection improvements include both elements.

A. Traffic Related Mitigation

1. Park Drive @ Beacon Street	Reconstruct intersection with left-turn lanes; signal upgrade/retiming.
2. Park Drive @ Riverway	Redesign intersection to incorporate new signal and pedestrian crossing.
3. Park Drive @ Brookline Avenue/ Boylston Street	Add southbound right-turn lane along Brookline Avenue; retime signal.
4. Huntington Avenue/Louis Prang/ Ruggles Street	Restripe to provide a two-lane approach along Louis Prang Street.
5. Brookline Avenue/Fullerton Street	Provide two-lane approach on Fullerton. Revise Brookline Avenue cross-section to provide left-turn lane.
6. Park Drive @ Fenway	Signal retiming.
7. Commonwealth Avenue/B.U. Bridge	Revise geometry to convert westbound Commonwealth Avenue from three through/one right-turn lane to two through/two right-turn lanes, retime signal.
8. Fenway/Evans Way/Louis Prang	Interconnect signal to Huntington Avenue signal.
9. Riverway/Fenway	Signalize -- Interconnect with adjacent intersection signals at Brookline Avenue/Fenway and Park Drive/Riverway.
10. Park Drive/Site	Redesign intersection/revise signal, interconnect with adjacent signals at Park Drive/Riverway and Brookline Avenue/Boylston Street/Park Drive, as appropriate.

B. **Transportation Monitoring**

1. Designate on-site Transportation Coordinator
2. Install vehicle sensors to collect vehicle trip data on an ongoing basis and provide to BTD upon request.
3. Track monthly T pass sales and conduct annual surveys on modal splits by customers and employees.
4. Monitor all on-site transportation demand strategy programs.

C. **Transit-Related Mitigation**

1. Fenway Station
   - Provide strong pedestrian connections between project access points and Fenway T station.
   - Install lighting in the vicinity of the Fenway Station.
   - Construct a "gateway" to the Fenway Station that will be a suitable focal point for access to the station.
   - Installation of a kiosk for posting schedules and other public announcements.
   - Improvement of existing stairwell between Park Drive and the station.

2. Bus Service
   - Install bus stop shelter at bus stop along Park Drive; this stop will be connected to the Fenway Station by a sidewalk on the site.
   - Install bus stop shelter at a new bus stop in the vicinity of the mall entrance at Brookline Avenue/Fullerton Street.
   - Install a bus stop shelter along the south side of Brookline Avenue for inbound passengers.

3. Transit Inducement Program
   - Sell MBTA passes to the general public within the project.
   - Encourage tenants to subsidize T passes for employees.
   - Provide transit information board or kiosk for posting of T pass information and sales, schedules, and route information.
   - Designate a full-time, on-site mall management employee as Transportation Coordinator. This person will act as liaison between the mall and tenants, other nearby institutions, and the city.
   - Provide on-site taxi stand with a telephone connection to local cab company.

D. **Pedestrian-Related Mitigation**

1. Construct a walkway from the Fenway T station to the Park Drive sidewalk.
2. Provide a defined walkway between the Fenway T station and the entrance to the supermarket.
3. Provide stairs from the Park Drive sidewalk to the retail entrance.
4. Provide new crosswalk markings at the Park Drive main entrance.
5. Install new lighting along all on-site pedestrian routes.
6. At Brookline Avenue/Park Drive/Boylston:
   - Upgrade pedestrian pavement markings and signing along the perimeter of the site.
   - Narrow the right-turn roadway from Boylston Street to Brookline Avenue to increase the existing triangular island and upgrade island.
   - Provide a pedestrian signal push-button on the island.
   - Redirect crosswalk on Brookline Avenue to focus on the intersection of Brookline Avenue and Park Drive.

- Modify the sidewalk at the corner of Brookline Avenue and Park Drive to facilitate the pedestrian routing from Park Drive to Boylston Street.
- Integrate pedestrian crossing phase into existing signals to allow adequate crossing time for pedestrians.

8. At Fenway/Brookline Avenue:
    - Retime signals to integrate pedestrian crossing phases across each roadway.
9. At Park Drive/Riverway:
    - Provide pedestrian crossing phase.
10. At Riverway/Fenway:
    - Provide pedestrian crossing phase at new signal at merge location.
11. Repair or replace sidewalks as needed along the site perimeter.
12. Provide suitable lighting for all adjacent pedestrian routes along the perimeter of the site, as needed.

D. Bicycle-Related Mitigation

1. Provide weather-protected bicycle racks at appropriate locations.

E. Parking Management Programs

1. Provide preferential parking for vanpools and carpools for on-site employees.
2. Implement retail-dedicated parking controls to prevent use of these spaces by long-term, all-day parkers.

F. Loading/Delivery Activities

1. Work with BTD to establish loading dock/delivery guidelines and work with tenants to ensure compliance.
2. Provide sufficient off-street loading area; all loading will occur on-site. No on-street loading will be allowed.
3. Discourage deliveries during commuter hours.

G. Construction-Related Mitigation

1. Encourage ride-sharing among construction personnel.
2. Subsidize **T** passes for long-term construction personnel.
3. Designate truck routes for all truck activity related to construction.
4. All construction staging/storage to occur on-site.
5. Provide police officer traffic management at site access points, as necessary, during high traffic generation construction periods.

4.0 ENVIRONMENTAL IMPACTS

4.0 ENVIRONMENTAL IMPACTS

4.1 Wind

4.1.1 In Appendix 4.0

4.1.2 In Appendix 4.0

4.1.3 Wind Flow Modification Characteristics of the Project

As stated in the previous team's project description, the Olmsted Plaza design consisted of four major elements: renovations to the original Sears building, construction of a 92' high open parking garage, construction of a 227,000 GSF office building near Park Drive frontage of the site, and the development of a 309,000 GSF hotel or office building on Brookline Avenue.

The Fenway Plaza project consists of the renovation of the Sears building into an open parking structure and the construction of a 450,000 SF GLA 3 story retail building adjacent to it.

The Olmsted Plaza DEIR, based on an in-depth wind study, described the wind impacts of that project as follows:

- The renovation of the Sears building, by its very nature, has little or no potential for creating changes in wind flow patterns.

- The Olmsted Plaza parking structure consisted of eight stories, with a total height of 92 feet. This was a size well below any threshold for which wind impacts would be expected. Furthermore, the open sides of parking structures tend to eliminate creation of pressure gradient opportunities or channel sections.

- The Olmsted Plaza office building near the Park Drive frontage consisted of nine (9) stories, with a total height of 109 feet. This falls within both the height envelope of the adjacent Sears Tower, and the 300 foot height threshold at which high-rise type wind effects begin to become evident. Therefore, there was little chance of creating new vertical deflection problems. Similarly, that building would not have created new urban street canyon possibilities. The building was set back from

Park Drive, and no adjacent structural counterparts which channelized sections would have been created.

- The last major element of the Olmsted Plaza design was the 309,000 GSF building along Brookline Avenue. The building was to consist of thirteen (13) stories with a total height of 151 feet, a scant one foot above the threshold at which BRA suggests that potential for wind impacts should be considered. While this was the largest and tallest new elements of Olmsted Plaza, its height was also less than that of the existing Sears Tower. Likewise, its mass was less than a third that of the existing structure. As with the Park Drive building, there were no conditions that would have lead to the creation of wind flow modifications that would have adversely affect the pedestrian level wind environment.

Summary

The Olmsted Plaza project, which consisted in part of the construction of two office buildings exceeding 100 feet, and a garage building of 92 feet in height, had a far greater potential impact on wind conditions. The portion of the project consisting of the conversion of the main Sears building to a parking structure has little or no potential for creating changes in existing wind flow patterns. In fact, the renovation of this building to an open parking structure will tend to eliminate pressure gradient opportunities, thereby reducing general wind flow relative to that generated by the original structure, which, under the Olmsted Plaza scheme, was to have remained with solid, not partially open, walls.

The new retail building is planned to be approximately the same height as the existing auxiliary buildings behind the Sears warehouse, and is “attached to” the main building. This eliminates the possibility for wind channeling that would have occurred between the taller separate buildings in the Olmsted Plaza scheme. Overall, the Fenway Plaza project will cause very minimal, if any, wind impacts on adjacent streets and properties, and far less wind impact than the previously-approved Olmsted Plaza project.

4.2 Shadows

4.2.1 Introduction

The following is an analysis of shadows near the Fenway Plaza Site. The analysis calculates existing shadows several times a day for several days a year. Subsequently a parallel set of shadow calculations is undertaken to outline the shadows associated within the Fenway Plaza new structures on the site. In the course of the analysis the shadows created by the new buildings are superimposed on the existing shadows to determine the extent of the incremental impact, or net shadows attributable to the project.

Shadow lengths were calculated by computer model for the Olmsted Plaza DEIR, then hand diagrammed for several scenarios. As suggested in the BRA scope for the DPIR, shadow conditions were analyzed for the hours 9:00 a.m., 12:00 Noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox and winter solstice. The summer solstice is the minimum shadow case: the winter solstice is the maximum shadow case. The fall and spring equinox cases differ by one hour since daylight savings applies to the former, but not to the latter time of year.

In each of the twelve shadow diagrams that follow, the existing project site together with the buildings on the improved Fenway Plaza site are graphically depicted. Additionally, the shadows of the previously approved Olmsted Plaza scheme are delineated on the shadow diagrams for comparison. The diagrams also show the area north of the site upon which Fenway Plaza shadows fall. The shadows are shown in two shade tones: the darker tone is the existing shadow, the lighter tone is the new shadow associated with the new structures. A dashed line indicates the Olmsted plaza shadows. The following analysis also contains a comparison of the shadow impacts of the project compared to Olmsted Plaza.

4.2.2 March Shadows

The 9:00 a.m. shadows are shown on Figure 4.2-1, This figure shows that the new shadow occurs at the northwest site boundary. For the most part the new shadow falls upon the Green Line right-of-way. Unlike Olmsted Plaza, no shadow falls on the Park Drive overpass of the Green Line or upon the southern portion of Aberdeen Street. Similarly, unlike Olmsted Plaza, the southeast facades of the buildings across the Green Line are not affected by the area of new shadow, nor is Fullerton Street affected by the area of new shadow.

By noon the shadows are considerably shorter, as can be seen in Figure 4.2-2. In this scenario, the net shadows fall entirely upon either the Green Line, the Fenway Plaza site or Fullerton Street. Most of the net new shadow in this scenario is cast by the new retail structure despite its limited height. No new shadows fall either in residential or active pedestrian areas. Unlike Olmsted Plaza, there is no shadow on the Harvard Community Health Plan Property.

By 3:00 p.m. shadows have swung to the east. This case is shown in Figure 4.2-3. For the most part these afternoon shadows fall on the Fenway Plaza site, Fullerton Street and upon the adjacent Harvard Community Health Plan property. In addition some new shadows occur along Brookline Avenue east of the site. The new shadow along Brookline Avenue includes part of the sidewalk on the west side of the street, not on both sides of the street, as was the case with Olmsted Plaza. All the net new shadow on Brookline Avenue compared to existing conditions is created by the new retail building.

4.2.3 June Shadows

The morning shadows for June are shown in Figure 4.2-4. These shadows fall almost exclusively on the Green Line right-of-way. Unlike Olmsted Plaza, there is no new shadow on the residential buildings to the northwest. The new retail building is the primary source of the new shadows in this scenario. Again, unlike Olmsted Plaza, no new shadows are cast on the Park Drive overpass to the Green Line.

The summer solstice shadows at noon are quite short as one would expect. As noted on Figure 4.2-5 the new shadows fall either on the site or on a small part of the Green Line. The minimum shadows created are due to the new retail building.

The afternoon shadows shown in Figure 4.2-6 are also quite limited. They fall upon the site and Fullerton Street. Unlike Olmsted Plaza, the Harvard Community Health Plan Building at the corner of Fullerton Street and Brookline Avenue is not affected. A small piece of sidewalk at the corner of Fullerton Street and Brookline Avenue is shadowed as well; otherwise no active pedestrian areas fall within the newly shadowed areas.

4.2.4 September Shadows

September shadows are longer, and therefore more extensive, as one should expect. The 9:00 a.m. shadows are shown on Figure 4.2-7. They show that the new retail building casts a new shadow to the northwest. The new shadow falls mostly upon the Green Line. The new retail building causes some new shadow north of the Green Line. It affects are seen mostly on the sides of the buildings between Aberdeen Street and Miner Street. Unlike Olmsted Plaza, there is no new shadow on Park Drive, nor on the roofs of the buildings between Aberdeen Street and Miner Street.

By noon, shadows have shortened considerably. As shown on Figure 4.2-8 new shadows fall just across the Green Line. At the same time, new shadows cover most of Fullerton Street, but not the Harvard Community Health Plan property, unlike Olmsted Plaza. The net new shadow in this case is caused by the new retail building.

Figure 4.2-9 shows that the 3:00 p.m. shadows fall to the northeast of the site. In doing so they cover nearly all the open area between Fenway Plaza and the Harvard Community Health Plan building. But unlike Olmsted Plaza, they do not cover any of Harvard Community Health Plan's building. The new shadow is cast by the new retail building. The sidewalk at the corner of Fullerton Street and Brookline Avenue is not impacted in this scenario, unlike Olmsted Plaza.

4.2.5 December Shadows

With the lower sun angles shadows are much more prevalent in December. In the morning, however, net new shadow is limited since most shadows from the new buildings fall onto existing shadows. As shown on Figure 4.2-10 no new shadow falls on Park Drive south of Audubon Circle; however, some new shadow falls on the rooftops of the buildings north of the Green Line, and a new portion of the Green Line that extends up into the Miner Street area is shadowed. Likewise, Fullerton Street is mostly in shadow. New shadow on pedestrian areas appears absent. The net shadow that does occur is due to the new retail building.

By noon the shadows have shifted to the north and shortened. Figure 4.2-11 shows that new shadows fall on the Green Line, but not beyond it, unlike Olmsted Plaza. They also cover the open area between Fenway Plaza and the Harvard Community Health Plan property, including most of Fullerton Street, but unlike Olmsted Plaza, do not cover any of Harvard Community Health Plan's building. Shadows avoid sidewalks and other pedestrian areas. The new shadows are caused by the new retail building.

By 3:00 p.m. shadows fall almost parallel to the Green Line. Figure 4.2-12 shows that new shadow is limited to a thin strip on the Green Line and portions at either end of the Harvard Community Health Plan building, unlike Olmsted Plaza whose shadows covered half the HCHP building. Again, the new shadow that does occur is due to the new retail building. New shadow avoids sidewalks and other pedestrian areas.

4.2.6 General Conclusions

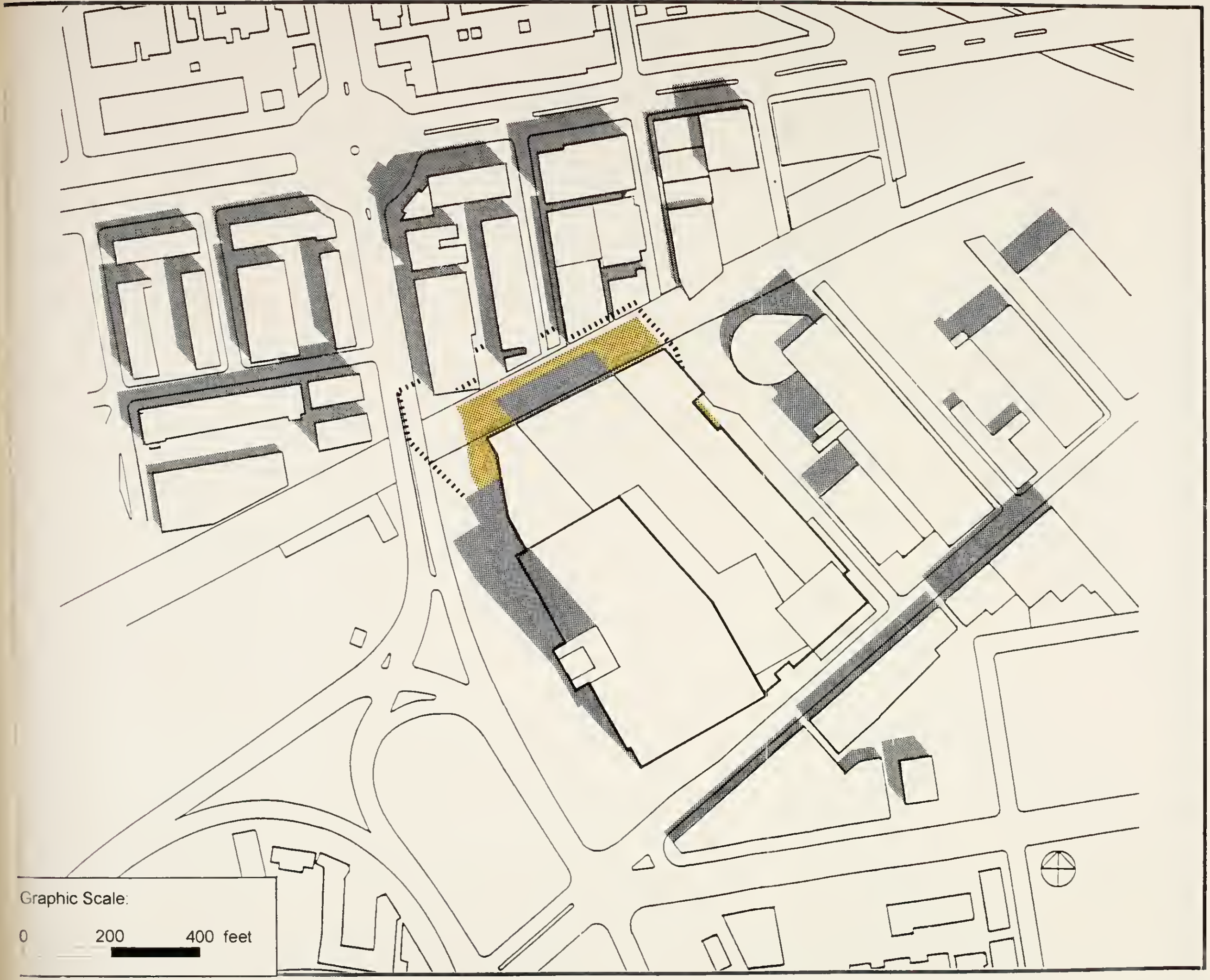
In total the Fenway Plaza project appears to create a modest amount of net new shadow over existing conditions. Most of the shadow falls upon areas with little sensitivity to the loss of sun. Under selected scenarios, pieces of Park Drive and its sidewalks will be subject to new shadows, properties north of the Green Line will have new shadows on their southeast facades, and there will be some new shadows on sidewalk areas of Brookline Avenue. In no instance will the new shadowing be a massive increase, or an increase for an inordinate part of the day.

None of the new shadow falls upon the sensitive areas west of the site. No new shadows occur at the entrance to the site, along Park Drive in front of the restored Sears building, or on portions of the nearby Olmsted Park system.

Summary

There will be significantly less shadow impact on adjacent streets and properties than was the case with the previously approved Olmsted Plaza project, with its significantly taller, multiple buildings. The Fenway Plaza project on its own will not generate any significant shadow impacts. The entire Fenway Plaza project, with its retail building approximately the same height as the existing three story warehouse buildings on the site, will have minimal, if any, impact on the adjacent streets and properties. There will be a slight increase in shadows along Fullerton Street over existing conditions because the new retail building will be closer to the street than the existing buildings.

Fenway Plaza Shadow Studies



9.00 AM

MARCH 21
1994

Figure 4.2-1

● existing shadows

● shadows from Fenway Plaza (notice of project change)

◌ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development

Fenway Plaza Shadow Studies

12.00 NOON

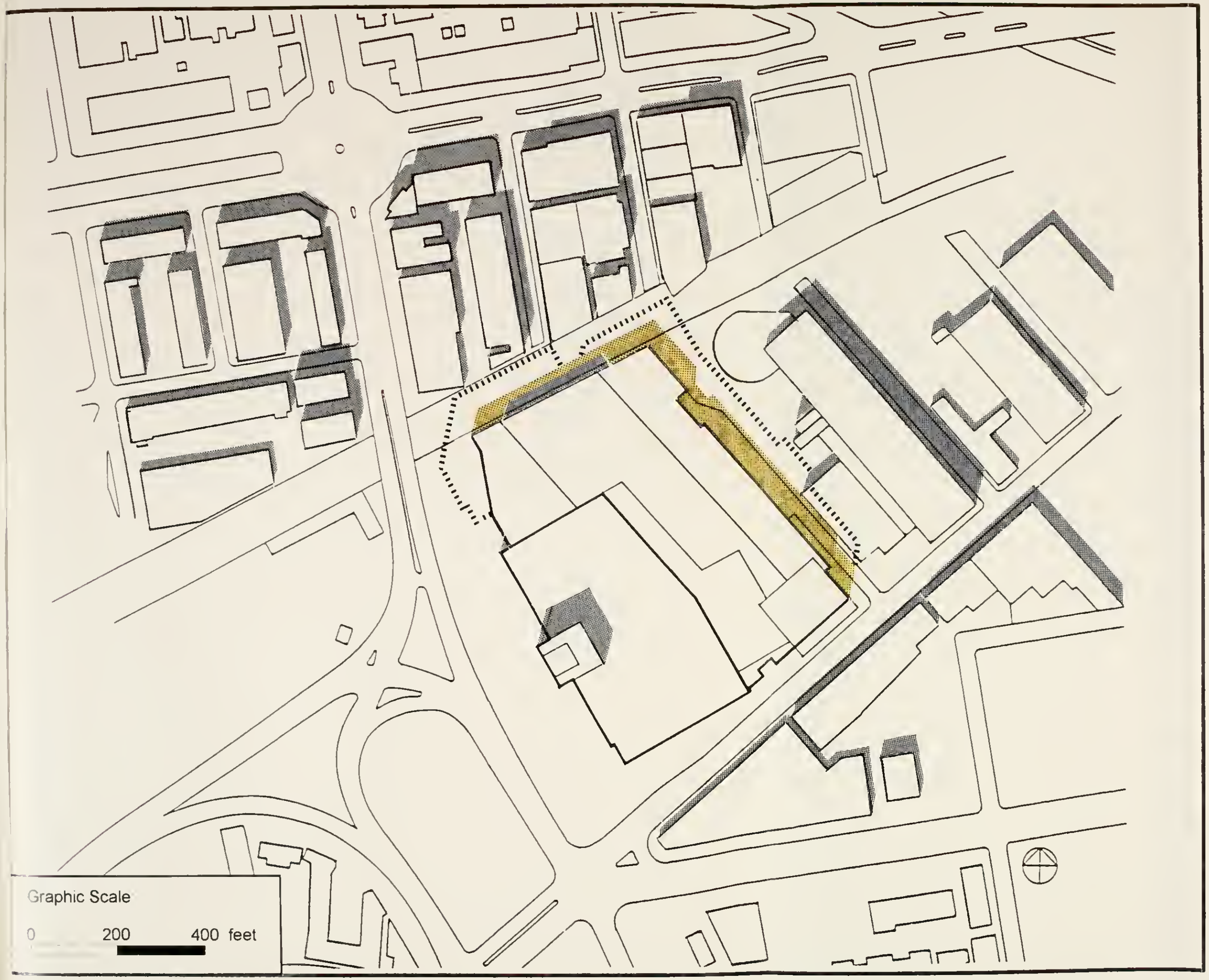
MARCH 21
1994

Figure 4.2-2

▨ existing shadows

▨ shadows from Fenway Plaza (notice of project change)

⋯ shadows from Olmsted Plaza (previously approved project)



NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

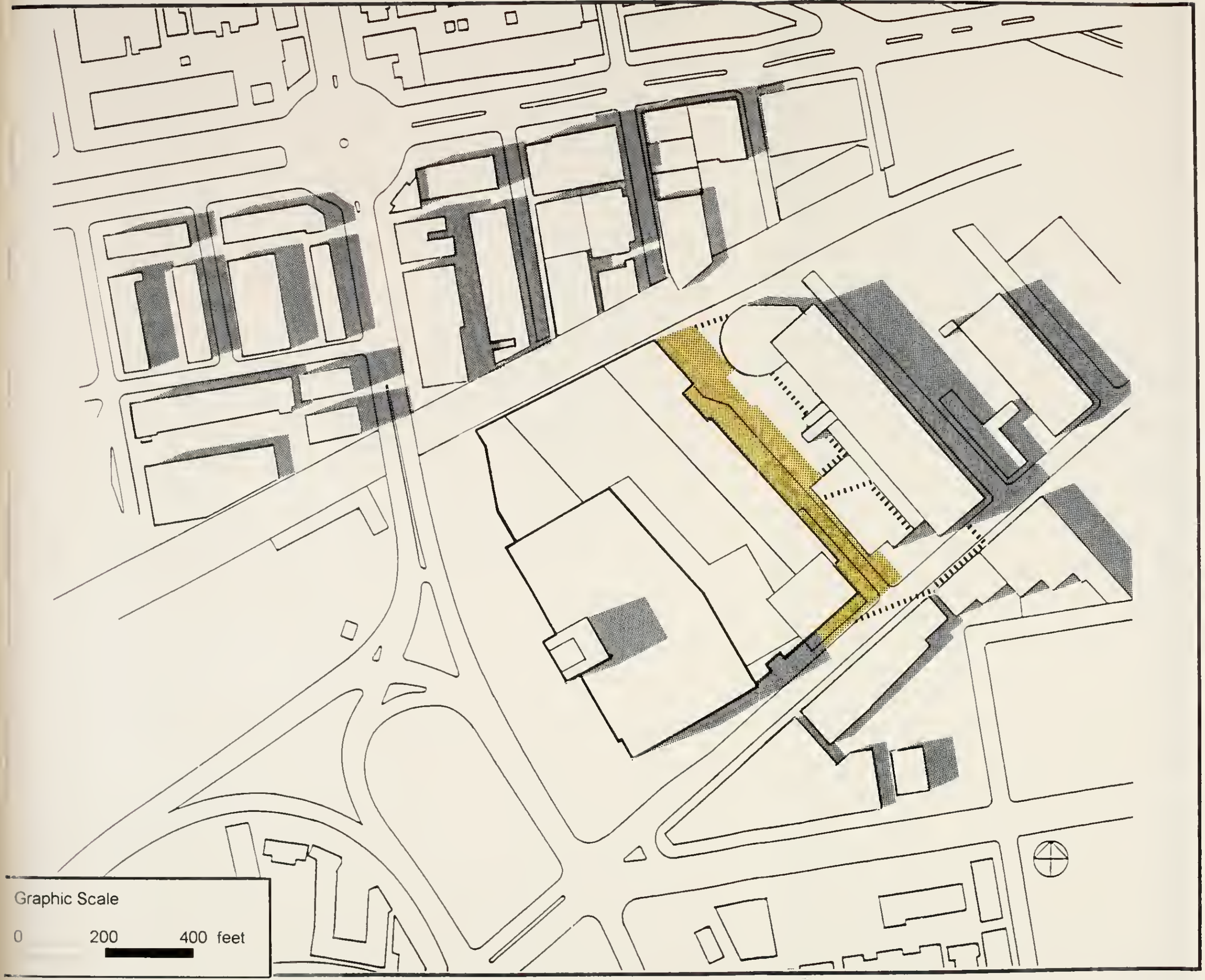
FENWAY PLAZA
A project of New England Development

Fenway Plaza Shadow Studies

3.00 PM

MARCH 21
1994

Figure 4.2-3



▨ existing shadows

▨ shadows from Fenway Plaza (notice of project change)

▯ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

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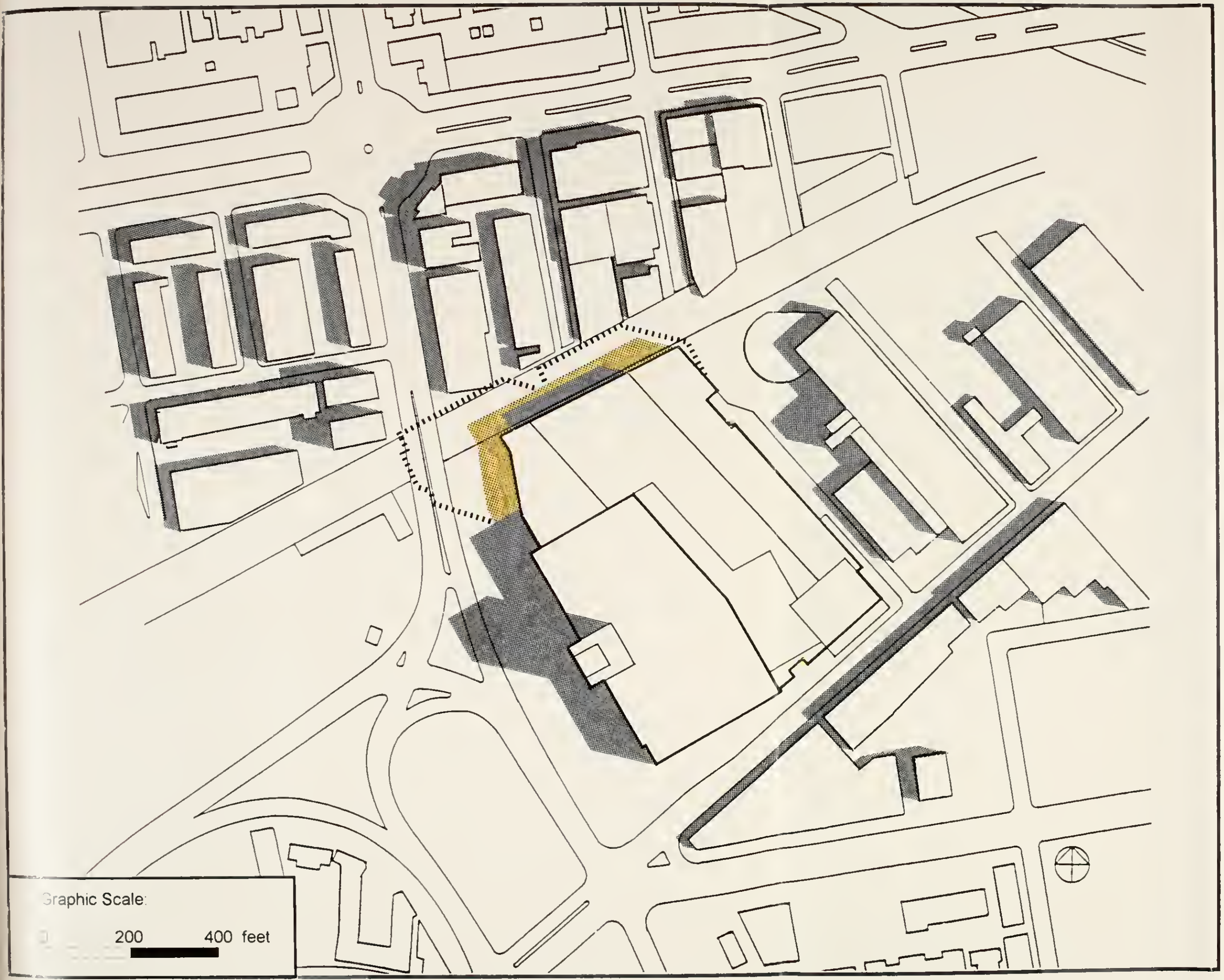
Fenway Plaza Shadow Studies

9.00 AM

JUNE 22
(Daylight Savings Time)
1994

Figure 4.2-4

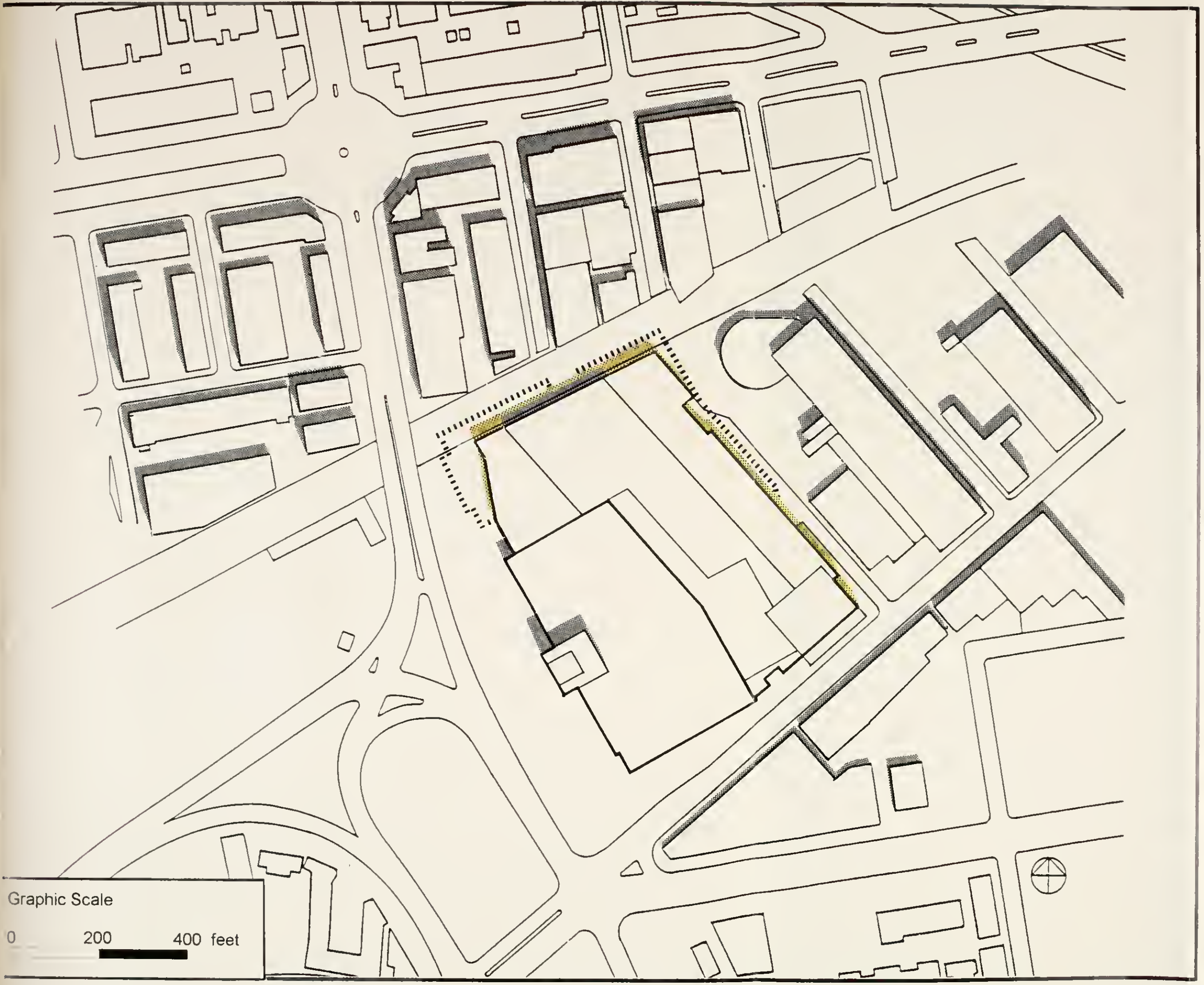


▨ existing shadows

▨ shadows from Fenway Plaza (notice of project change)

▥ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159



Fenway Plaza Shadow Studies

12.00 NOON

JUNE 22
(Daylight Savings Time)
1994

Figure 4.2-5

▨ existing shadows

🟨 shadows from Fenway Plaza
(notice of project change)

⁞ shadows from Olmsted Plaza
(previously approved project)

NEW ENGLAND
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One Wells Avenue
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FENWAY PLAZA
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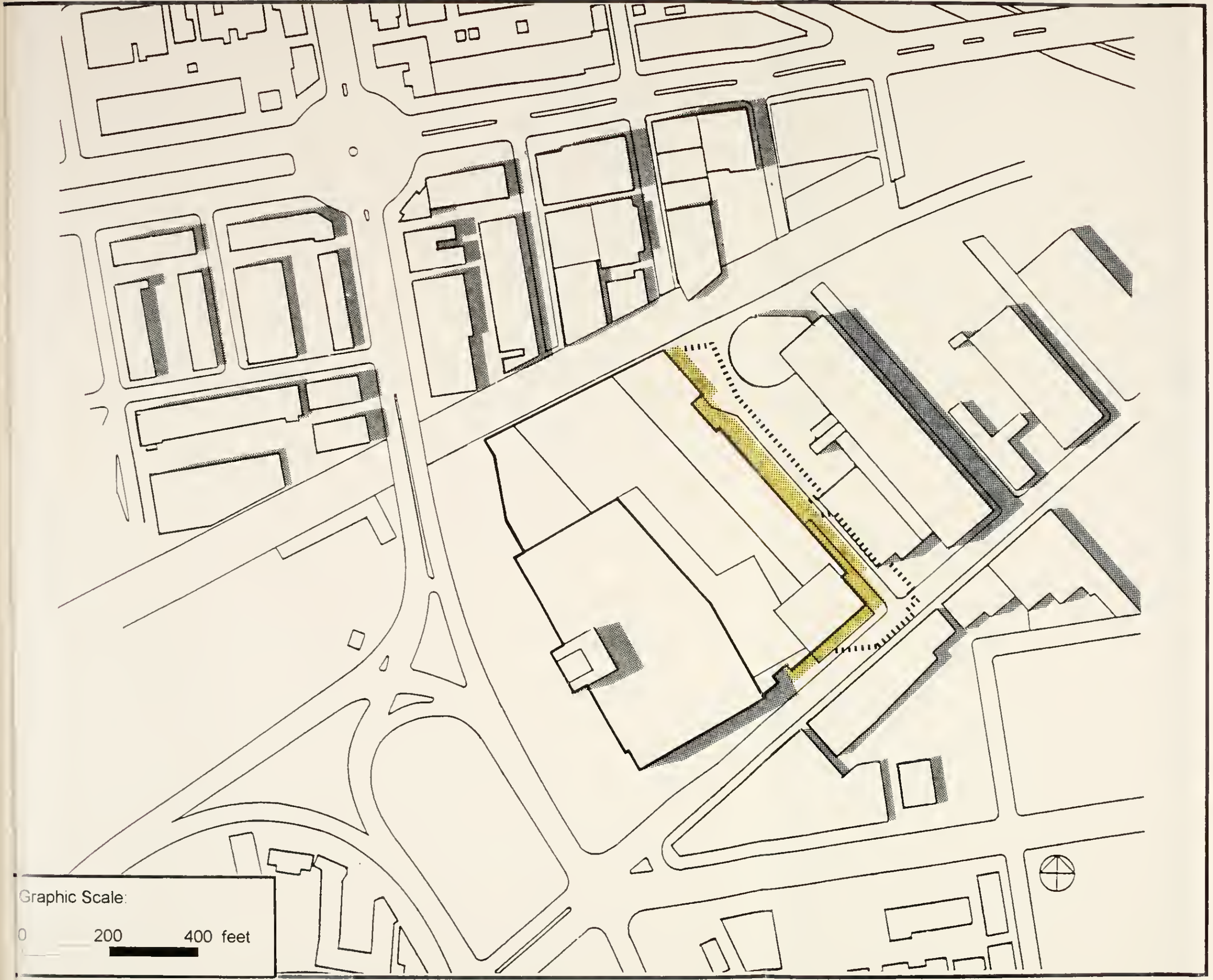

Fenway Plaza Shadow Studies

3.00 PM

JUNE 22
(Daylight Savings Time)
1994

Figure 4.2-6

▨ existing shadows

▨ shadows from Fenway Plaza (notice of project change)

⦙ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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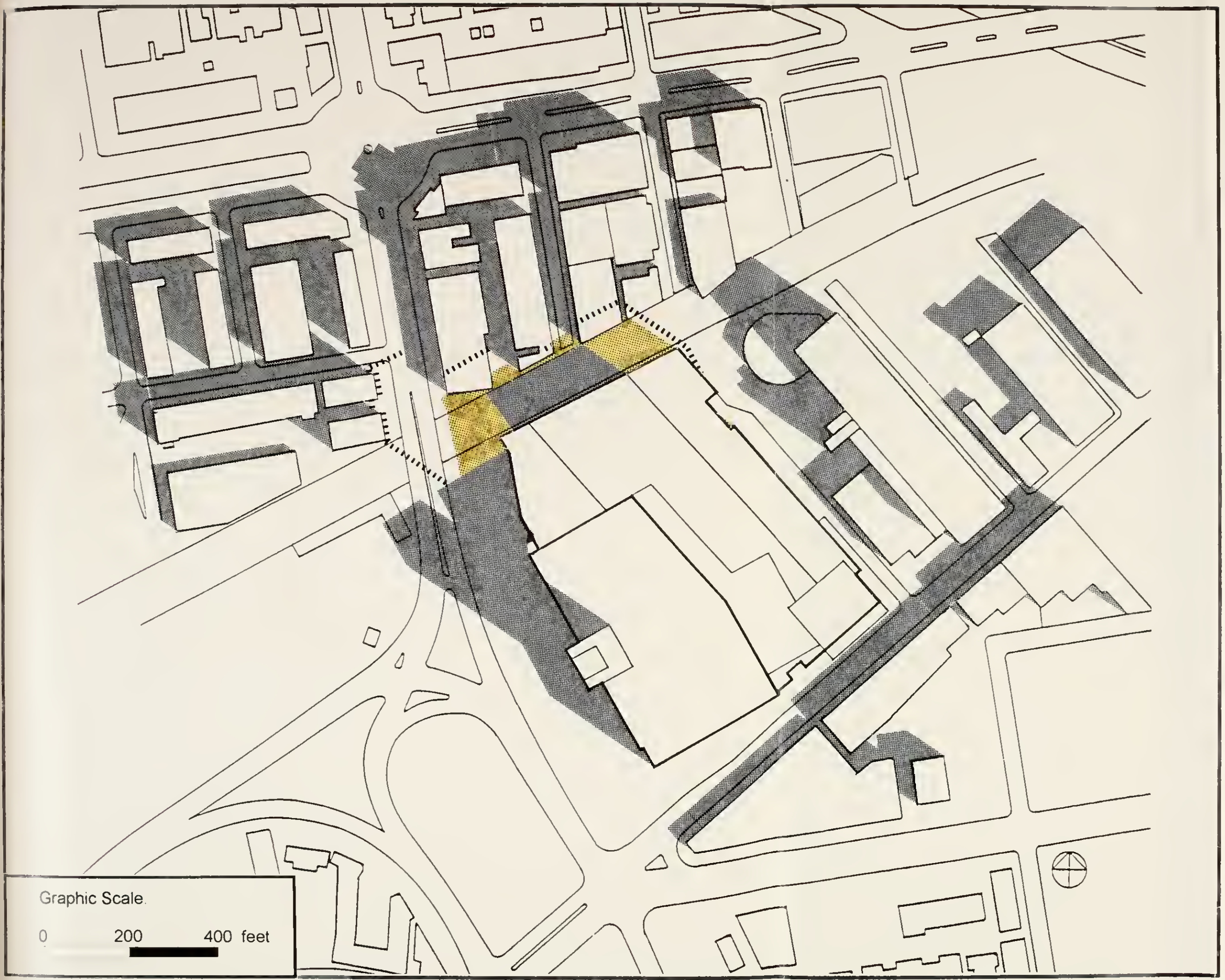

Fenway Plaza Shadow Studies

9.00 AM

SEPT 23
(Daylight Savings Time)
1994

Figure 4.2-7

▨ existing shadows

▨ shadows from Fenway Plaza
(notice of project change)

⦙ shadows from Olmsted Plaza
(previously approved project)

NEW ENGLAND
DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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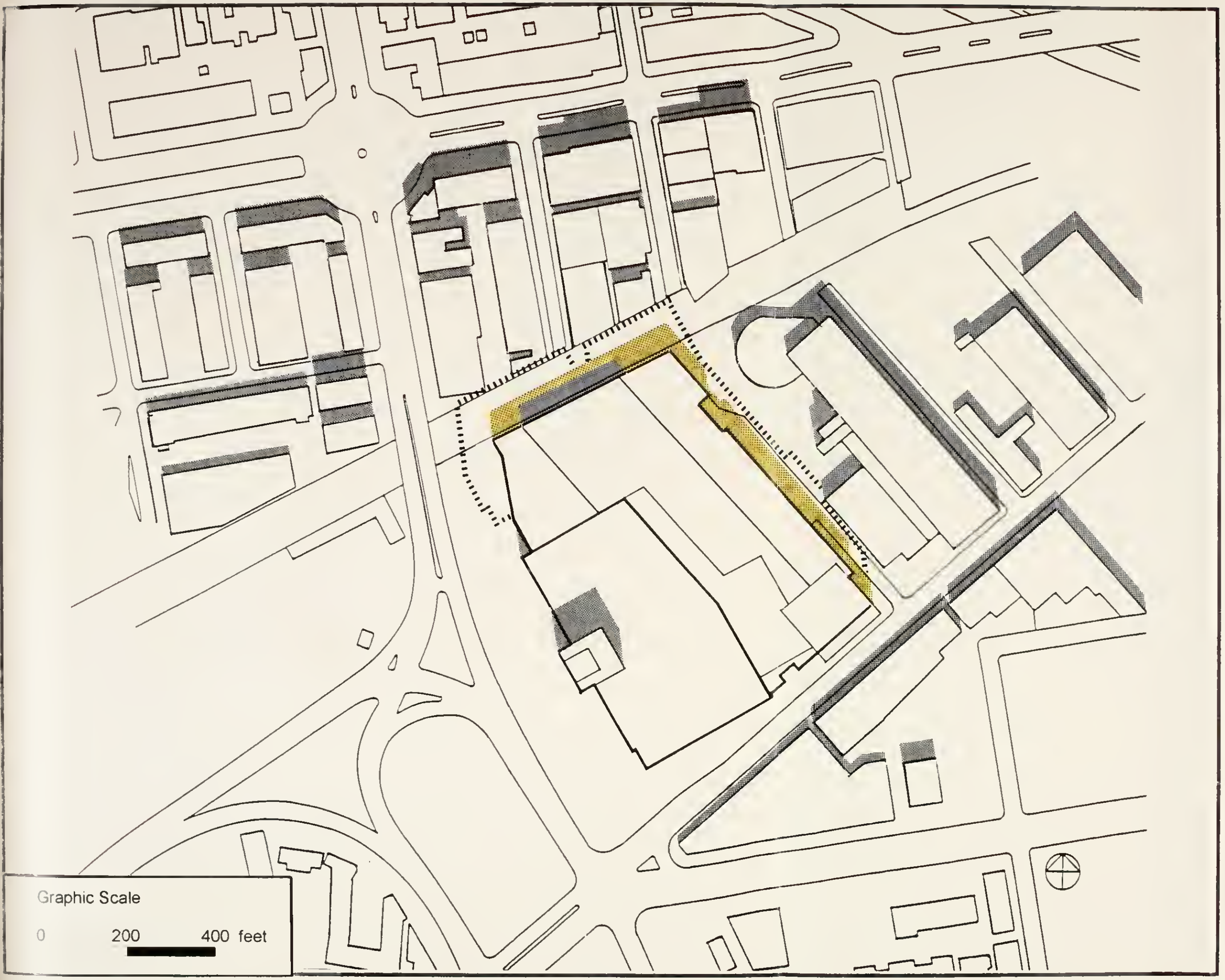
Fenway Plaza Shadow Studies

12.00 NOON

SEPT 23
(Daylight Savings Time)
1994

Figure 4.2-8



- ▒ existing shadows
- ▨ shadows from Fenway Plaza (notice of project change)
- ⋯ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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Fenway Plaza Shadow Studies

3.00 PM

SEPT 23
(Daylight Savings Time)
1994

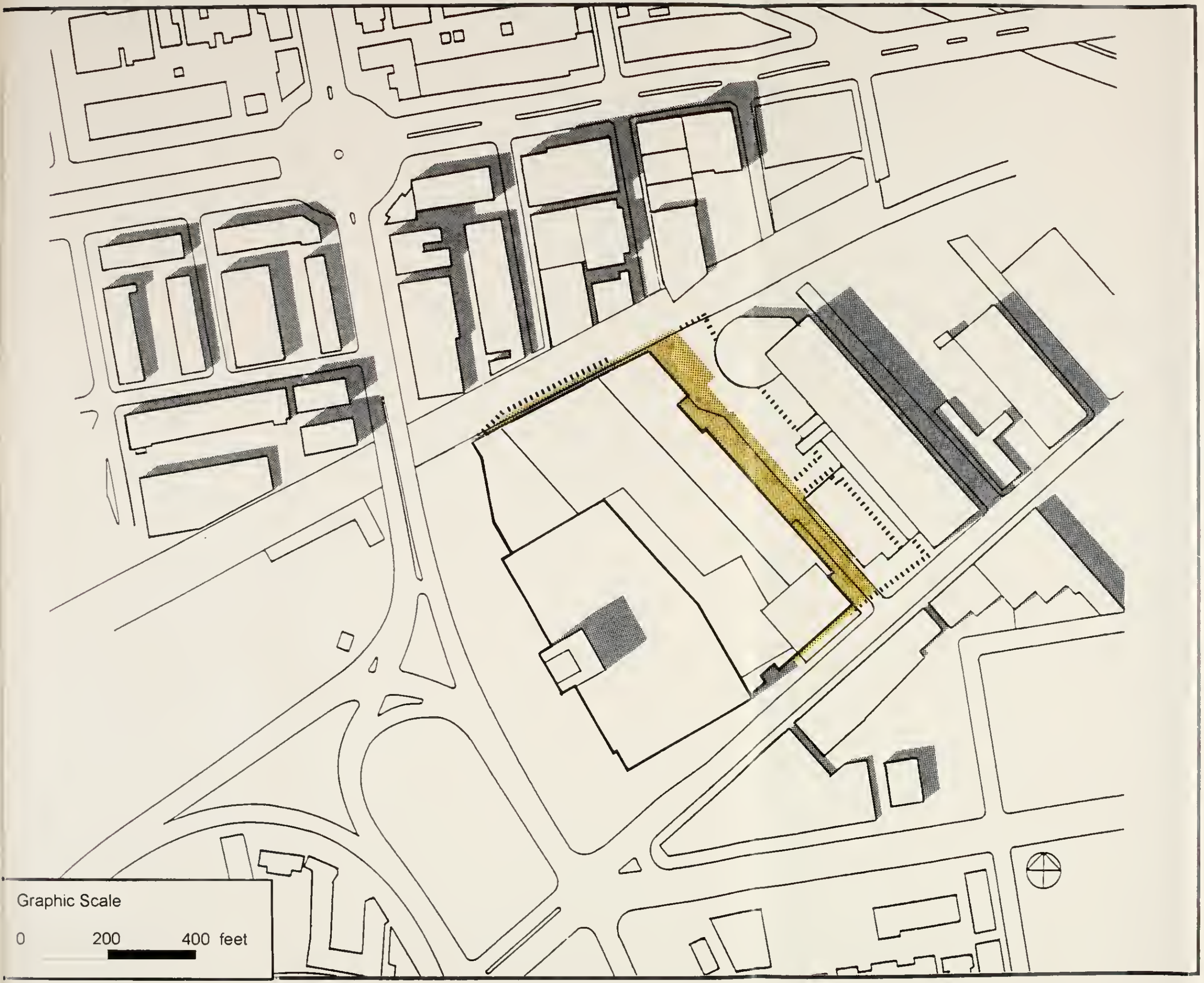

Figure 4.2-9

- ▨ existing shadows
- ▨ shadows from Fenway Plaza (notice of project change)
- ▨ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
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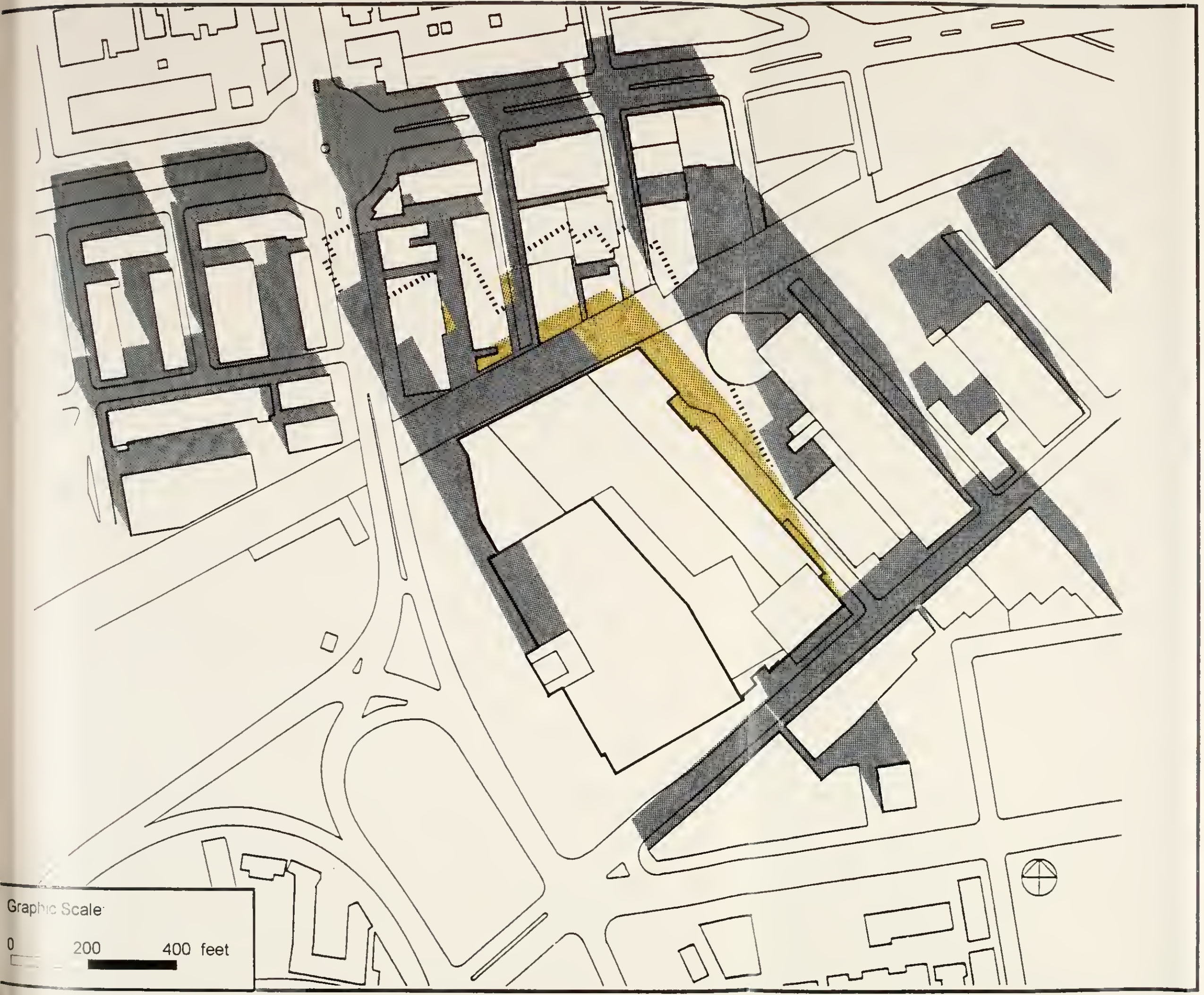
Fenway Plaza Shadow Studies

9.00 AM

DEC 22
1994

Figure 4.2-10



▨ existing shadows

🟨 shadows from Fenway Plaza (notice of project change)

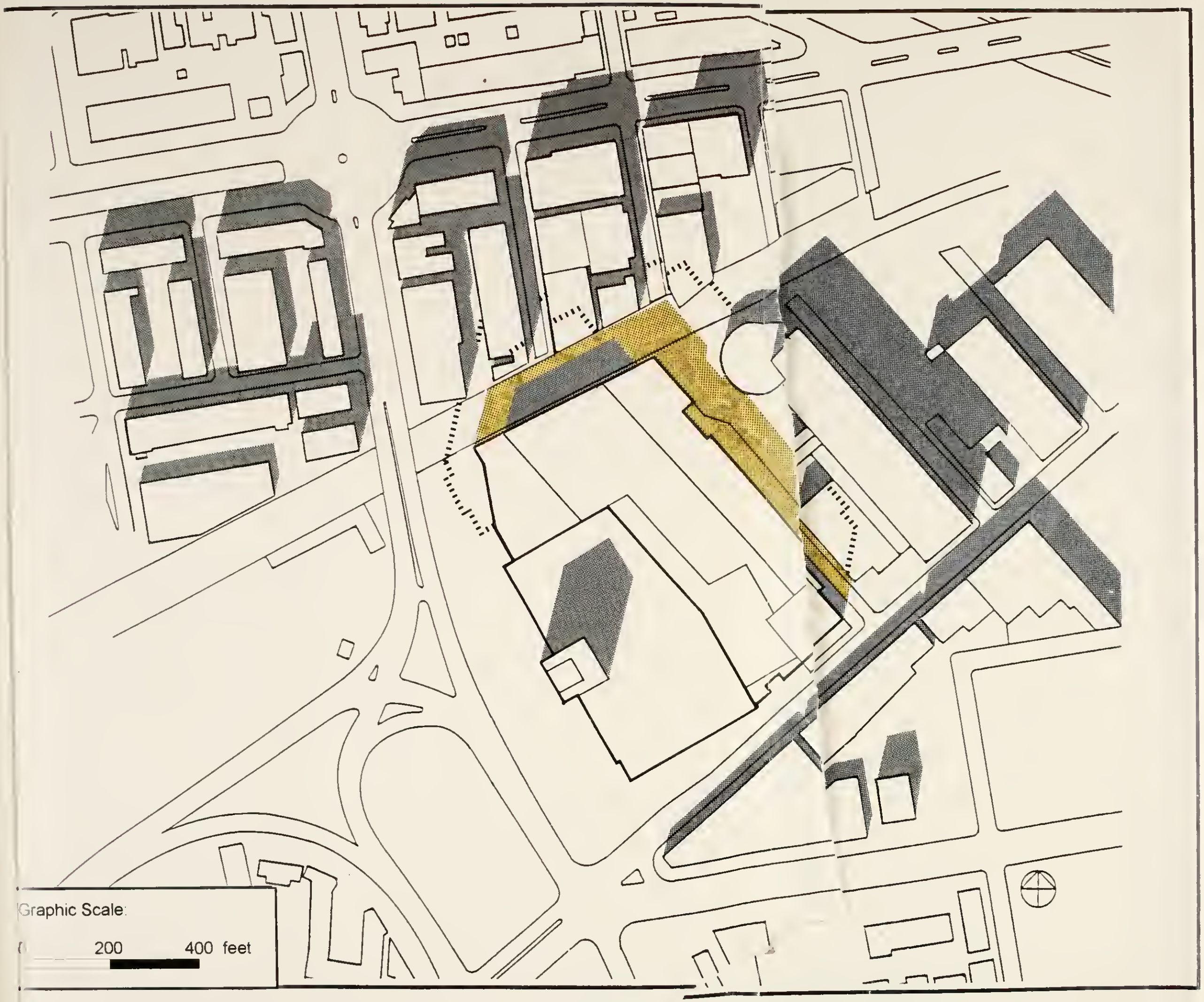
⋯ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT

One Wells Avenue
Newton, MA 02159

FENWAY PLAZA

A project of New England Development



Fenway Plaza Shadow Studies

12.00 NOON

DEC 22
1994

Figure 4.2-11

- ● existing shadows
- 🟨 shadows from Fenway Plaza (notice of project change)
- ⋯ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

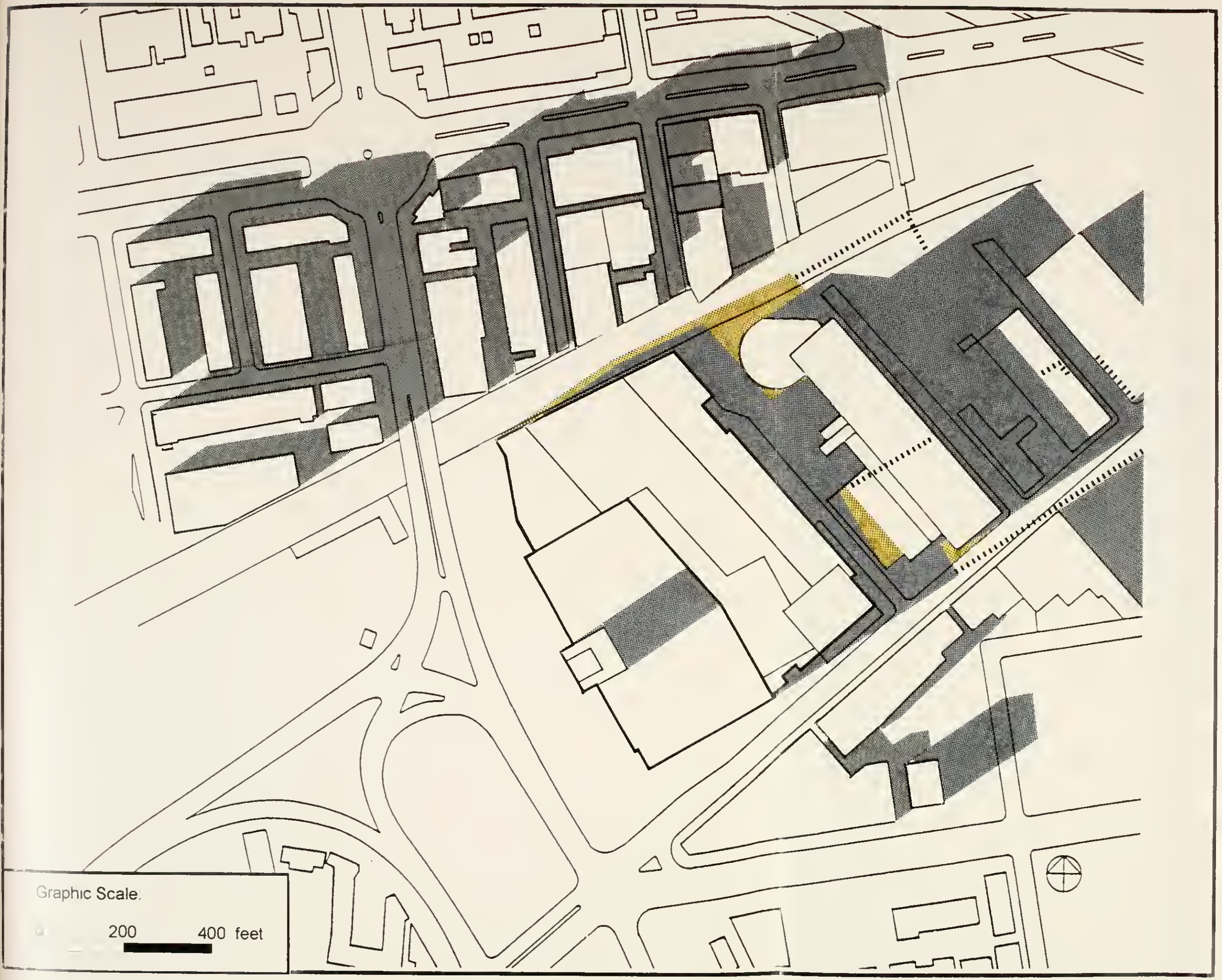
FENWAY PLAZA
A project of New England Development

Fenway Plaza Shadow Studies

3.00 PM

DEC 22
1994

Figure 4.2-12



▨ existing shadows

🟨 shadows from Fenway Plaza (notice of project change)

⋯ shadows from Olmsted Plaza (previously approved project)

NEW ENGLAND DEVELOPMENT
One Wells Avenue
Newton, MA 02159

FENWAY PLAZA
A project of New England Development

4.3 Daylight

4.3.1 Introduction

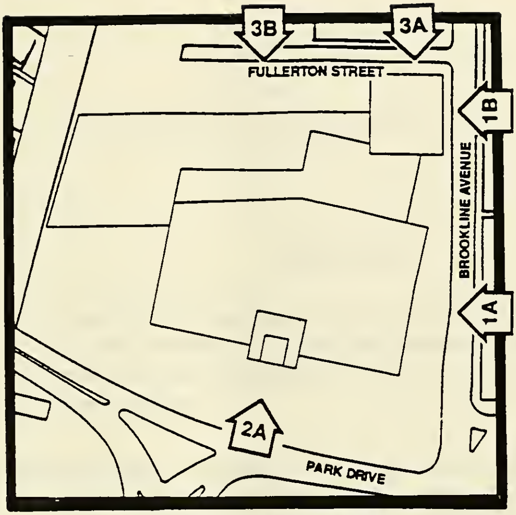
The purpose of this analysis is to estimate to the extent to which Fenway Plaza will reduce the amount of daylight reaching the street level. It does so by comparing the effects of the existing versus proposed massing of buildings along Brookline Avenue, Park Drive and Fullerton Street. The Olmsted Plaza DEIR contained detailed daylight analysis including calculations of the daylight obstruction from the existing main building and warehouses on the site, and the proposed development, which included in addition to the existing structure two additional towers and a parking garage.

4.3.2 Methodology

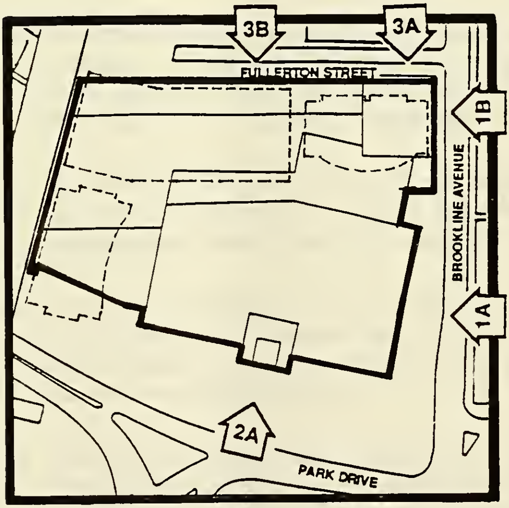
The daylight study for Fenway Plaza was interpolated from the daylight study performed for Olmsted Plaza which utilized the Boston Redevelopment Authority's Daylight Analysis (BRADA) computer program. (Described in the Olmsted Plaza DEIR.) In downtown Boston, where most studies using the BRADA model have been done to date, obstruction has typically been in the 80% range.

4.3.3 Observation Points

Daylight studies were conducted for Olmsted Plaza at locations discussed and approved by the BRA staff. Those vantage points are shown in Figure 4.3-1 and are summarized in Table 4.3-1. The daylight study for Fenway Plaza was interpolated from data taken at these observation points.



Existing Conditions



Proposed Fenway Plaza
(Notice of Project Change- Previously approved Olmsted Plaza project shown in dashed lines)

Daylight Study Vantage Points
Figure 4.3-1

TABLE 4.3.-1
VIEWS AND VANTAGE POINTS

View From	Vantage Point
Southeast	1A. Centerline of Brookline Avenue at midpoint of east facade of main building, for existing and proposed conditions. In each case, the range of view modeled is limited to the Main Sears Building.
	1B. Centerline of Brookline Avenue at midpoint of warehouse “M,” for existing conditions, and at corner of retail building for proposed conditions. Range of view includes neither the Main Sears Building nor the HCHP building.
Southwest	2A. Centerline of Park Drive at midpoint of west facade of main building, for existing and proposed conditions. Range of view includes neither the Main Sears Building nor buildings, such as the garage, in the background.
	2B. Centerline of Park Drive at corner of retail building. Range of view includes neither the Main Sears Building nor buildings, such as the garage, in the background.
Northeast	3A. Centerline of Fullerton Street at midpoint of warehouse “M,” for existing conditions, and at corner of proposed retail building for proposed conditions. Range of view is limited to these two buildings.
	3B. Centerline of Fullerton Street at midpoint of warehouse “F, ”for existing conditions, and at midpoint of proposed retail building for proposed conditions. Range of view does not include the Main Sears Building or either new building in the background.

4.3.4 Analysis Results

The analysis for the Fenway Plaza Project as summarized in Table 4.3-2, shows that calculated daylight obstructions range from 1% to 52.1% for the existing Sears site, and from 32.5% to ± 60% with the introduction of Fenway Plaza, as compared to 32.5% to 79.0% for Olmsted Plaza. The modest decrease in daylight over existing conditions reflects the introduction of a new retail structure on the site. Very careful review of the modeling assumptions and results is necessary to appreciate the significance of the changes.

Southeast View (1A and 1B)

Brookline Avenue is a location currently frequented by pedestrians, and an area which pedestrian traffic will increase with the completion of Fenway Plaza. Therefore, changes in daylight at the two locations with views from the southeast have some significance. As noted in Table 4.3-2, both the existing and future daylight obstruction at point 1A are estimated to be 46.7%. This is similar to the daylight obstruction factor of 46.7% for Olmsted Plaza from this vantage point. The identical figures are attributable to the fact that views from this location cover the Main Sears Building. Nothing in the renovation plans will affect obstruction daylight from this vantage point.

At vantage point 1B the existing daylight obstruction is 39.7%, with the old "M Section" warehouse in place. With the advent of the new Fenway Plaza retail structure daylight obstruction for this vantage point would moderately increase to the 40%-42% range. From vantage point 1B the Olmsted Plaza scheme would have had a daylight obstruction factor of 68.0%. The minor increase over existing conditions is a direct function of Fenway Plaza's three story retail building being continuously built along Brookline Avenue. The moderate increase in daylight obstruction is not considered troublesome, particularly in view of the fact that the new structure is north of Brookline Avenue. With the new structure on the north, versus the position of the sun to the south, the perception of reduced daylight will be lessened, numerical model results notwithstanding.

Southwest Views (2A and 2B)

The two vantage points with views from the southwest are located along Park Drive. These, too, are considered to be important locations for pedestrian activity. While existing pedestrian traffic is light, it should increase significantly upon completion of Fenway Plaza. The existing daylight obstruction from vantage point 2A is 32.2%. This relatively low number is due, in part, to the generous set back of the Main Sears Building from Park Drive. While the facade is large and impressive, it does not immediately abut the vantage point. Daylight obstruction remains at 32.2% with the completion of Fenway Plaza, as it did with Olmsted Plaza. This is the case since renovation of the Sears Building will not alter the facade silhouette that affects daylight obstruction.

TABLE 4.3-2
PERCENT DAYLIGHT OBSTRUCTED[*]
EXISTING CONDITIONS, OLMSTED PLAZA, FENWAY PLAZA

View	Street	Vantage Point[**]	% OBSTRUCTION Existing	Olmsted Plaza Project	Fenway Plaza Project
SE	Brookline Avenue	1A	46.7	46.7	46.7
SE	Brookline Avenue	1B	39.7	68.0	± 42
SW	Park Drive	2A	32.2	32.2	32.2
SW	Park Drive	2B	1.0 (-)	39.4	± 20.0
NE	Fullerton Street	3A	52.1	75.3	± 60.0
NE	Fullerton Street	3B	1.0 (-)	79.0	± 60.0

---

[*] Values do not include a reduction factor due to surface reflection effects.
[**] See Figure 4.3-1 for vantage point locations.

From vantage point 2B, model-calculated daylight obstruction increase from 1%, with existing conditions, to ± 20% upon introduction of the new Fenway Plaza retail building along Park Drive. This is less than the daylight obstruction factor of 39.4% in the Olmsted Plaza scheme from the same vantage point. The 1.0% value is nearly zero since the model "sees" only the parking area between Fenway Station and the Main Sears Building in the existing case. The increase to ± 20% with the new buildings is quite modest. The small increase is due, in part, to the fact that the retail building is three stories high.

Northeast Views (3A and 3B)

The last pair of vantage points view the site from Fullerton Street, northeast of the site. Daylight obstruction from these vantage points is considered less significant since it is presently a truck loading dock area from which pedestrian activity is discouraged, and it is to become Fenway Plaza's service dock area, rather than a primary pedestrian way for the project. From vantage point 3A existing daylight obstruction is 52.1%, the highest existing daylight obstruction value modeled. The relatively higher number is due to the narrow cross section of Fullerton Street (i.e., the vantage point is extremely close to the facade of the M Section). With the introduction of the retail structure the daylight obstruction would increase to ± 60%. This is less than the daylight obstruction factor of 79.0% in the Olmsted Plaza scheme from the same vantage point. This also reflects the narrow cross section of Fullerton Street and the proximity of the vantage point to the three story retail building built close to the street.

The obstruction at vantage point 3B increases from 1.0%, in the existing case, to ± 60% with the introduction of the three story Fenway Plaza retail building built out to the street. This is less than the daylight obstruction factor of 79.0% on the Olmsted Plaza scheme from the same vantage point. The near zero value for the existing case is due to the fact that the model sees "only" the existing truck parking area (the model is nearsighted, it sees only 200 feet in front of it). There is no reduction for the existing Main Sears Building in the background. In the future case the new retail structure presents a three story wall along Fullerton Street, fairly close to the location of the vantage point. The resulting ± 60% obstruction is the greatest observed with Fenway Plaza. The value is not considered troublesome, however, both because it is well below values at other recent development sites, and because it occurs in a less sensitive location.

4.3.5 Summary

Daylight. As with wind and shadow impacts, the Fenway Plaza Project will have little or no potential for increases in the obstruction of daylight to adjacent streets and properties. The Project, with its retail building approximately the same height as the existing three story buildings on the Site, but built 60 feet closer to Fullerton Street, will generate very modest increases in the obstruction of daylight relative to existing conditions. However, the Project will produce an overall decrease in the obstruction of daylight to adjacent streets and properties relative to the approved Olmsted Plaza scheme, with its taller, multiple buildings.

Calculated and extrapolated obstruction values fall well within values the BRADA model has estimated elsewhere in the city. It is likely that the values are comparable to values that might be expected on sidewalks in many residential portions of the Fenway.

4.4 Air Quality

4.4.1 Executive Summary

A microscale analysis was completed for purposes of 1) estimating air quality impacts in relationship to National and Massachusetts standards and; 2) comparing the previously proposed Olmsted Plaza project with the current proposed project, Fenway Plaza. No exceedances of the National or Massachusetts standards for CO were estimated at any of the sensitive receptors for the Fenway Plaza project. Proposed mitigation measures will reduce vehicular delay at the intersections by making the intersections operate more efficiently. This reduction in delays will minimize vehicular emissions. The great majority of the estimated Fenway Plaza carbon monoxide (CO) levels at sensitive receptors adjacent to the study area intersections were lower than the estimates for the previous project.

A microscale air quality analysis also was completed to determine the potential impacts from the proposed Fenway Plaza parking garage and surface parking to nearby sensitive receptors. Cumulative intersection and parking CO levels at the receptor locations are predicted to be below the National Ambient Air Quality Standards (NAAQS) and Massachusetts 8-hour goal.

A mesoscale analysis was completed for the Fenway Plaza project which predicted an increase in the volatile organic compound (VOC) composition of hydrocarbons emitted by vehicles within the study area as a result of the project. A mesoscale analysis was not required for the Olmsted Plaza project during its environmental review process. The proponent has proposed mitigation measures to ameliorate the air quality impacts. The mitigation measures include the addition of exclusive turning lanes, improvements to signal timing, and traffic demand reduction measures including efforts to facilitate use of public transportation systems and pedestrian systems.

The implementation of the mitigation measures is predicted to reduce vehicular emissions by reducing vehicular delay, reducing queuing conflicts, providing a more coordinated flow of vehicles in the study area and encouraging the use of alternative modes of transportation. The Fenway Plaza project in comparison to the Olmsted Plaza project will produce less vehicular emissions due to a lesser amount of project related traffic.

4.4.2 Introduction

A primary objective of this air quality analysis was to verify that the proposed project will comply with the National Ambient Air Quality Standards (NAAQS). The NAAQS were established by the Federal Clean Air Act to protect public health and welfare. Massachusetts has adopted the same standards as the federal government. Another purpose was to compare the impacts of the previously proposed Olmsted Plaza project with the new proposed project.

A microscale, carbon monoxide (CO) analysis has been conducted for the Build with Mitigation Condition for Fenway Plaza project and has been compared to the same Olmsted Plaza scenario. It includes the same intersections and sensitive receptor locations that had been analyzed for the Olmsted Plaza project. A microscale analysis of the parking garage has been conducted to predict air quality impacts on nearby sensitive receptors. In addition, a mesoscale analysis has been conducted to determine the relative increase in volatile organic compound (VOC) emissions.

4.4.3 Microscale Analysis

Levels of carbon monoxide, the most abundant and persistent pollutant emitted by motor vehicles, are projected in this microscale analysis as a general indicator of roadway air pollution levels. CO is a non-reactive compound and its concentration in the air can be readily determined. Using air quality modeling techniques, CO levels are estimated at the sensitive receptors near intersections affected by the project. Comparison of estimated CO levels to the NAAQS indicates whether or not motor vehicle emissions related to the proposed development will pose a threat to public health or welfare. National Ambient Air Quality Standards for carbon monoxide are established at 35 parts per million (ppm) for a one-hour period and 9 ppm for an eight-hour period. Massachusetts has adopted the NAAQS for CO but has established a goal of 8.5 ppm for the eight-hour period. Each standard or goal must not be exceeded more than once per year.

Massachusetts maintains an air quality monitoring station near the project site in Kenmore Square. Background levels of CO in the study area have been estimated by the Massachusetts Department of Environmental Protection (DEP) to be no more than 5 ppm for a one-hour period and 3 ppm for an eight-hour period. To assess the Fenway Plaza project for compliance, these estimated background concentrations are incorporated into the calculations.

The technical approach used in this analysis to estimate air quality is consistent with the methodology recommended by the Massachusetts DEP and the Boston Redevelopment Authority. The analysis calculated maximum CO concentrations based on traffic volumes during the predicted worst peak hour (weekday PM), the one-hour analysis, and the average hour of the predicted worst eight-hour period, the eight-hour analysis.

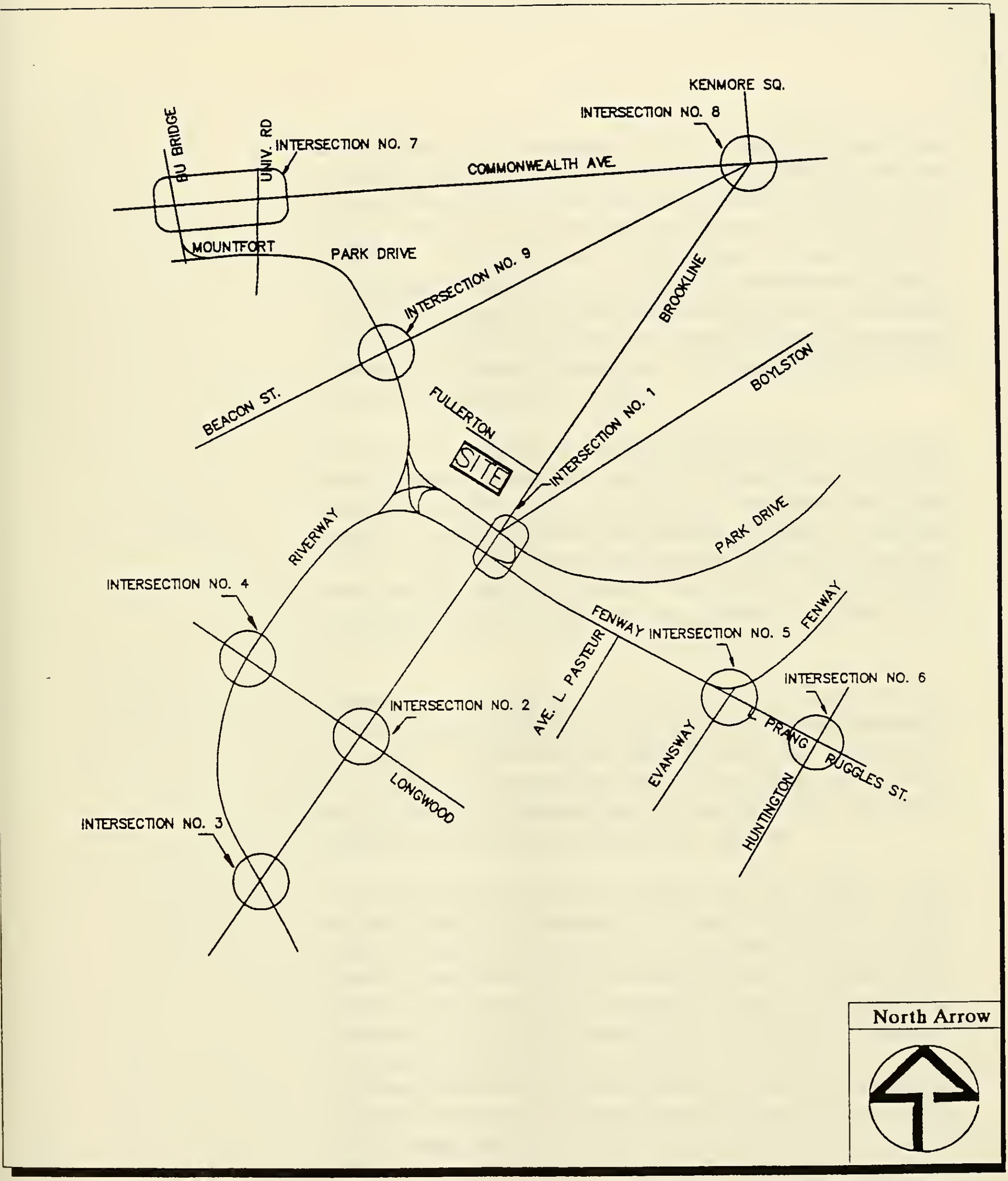
1. **Study Area** - A microscale study area is generally defined as the set of intersections that operate at a LOS D and will potentially experience an increase of 10 percent in traffic due to the project and those intersections at LOS E or F during the worst case peak hour. The microscale analysis includes 11 intersections and 44 potential sensitive receptors locations. These intersections are shown on Figure 4.4-1.

   Figure 4.4-1 shows 9 intersection locations. Intersection No. 1 actually includes the analysis of a complex of two intersections near the project site along Brookline Avenue. Similarly, Intersection No. 7 involves the analysis of two intersections that are close enough to one another to effect common nearby sensitive receptors near the Boston University Bridge along Commonwealth Avenue.

   The study area is not a minimal study area. In order to ensure a full analysis of impacts, some of the intersections were analyzed even though they currently operate and/or will operate at relatively good levels of service.

   One intersection, Brookline Avenue and Fullerton Street, is not included in the study area despite the prediction that the Fullerton Street vehicle movements on to Brookline Avenue are expected to operate at a LOS E. This intersection is unsignalized.

Unsignalized intersections cannot be accurately analyzed by current microscale analysis methodology which requires data input regarding the phasing and timing operations of signalized intersections. In addition, this intersection was not analyzed for the Olmsted Plaza project and no comparative analysis can be made. The poor level of service component of this intersection, the vehicle movements from Fullerton to Brookline, involve small volumes compared to the large volumes on the other streets and intersections that are included in the study area. On these bases, a microscale analysis for this intersection is not appropriate. However, Fullerton Street is included in the mesoscale air quality analysis.



FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Locus Plan
Boston, Massachusetts

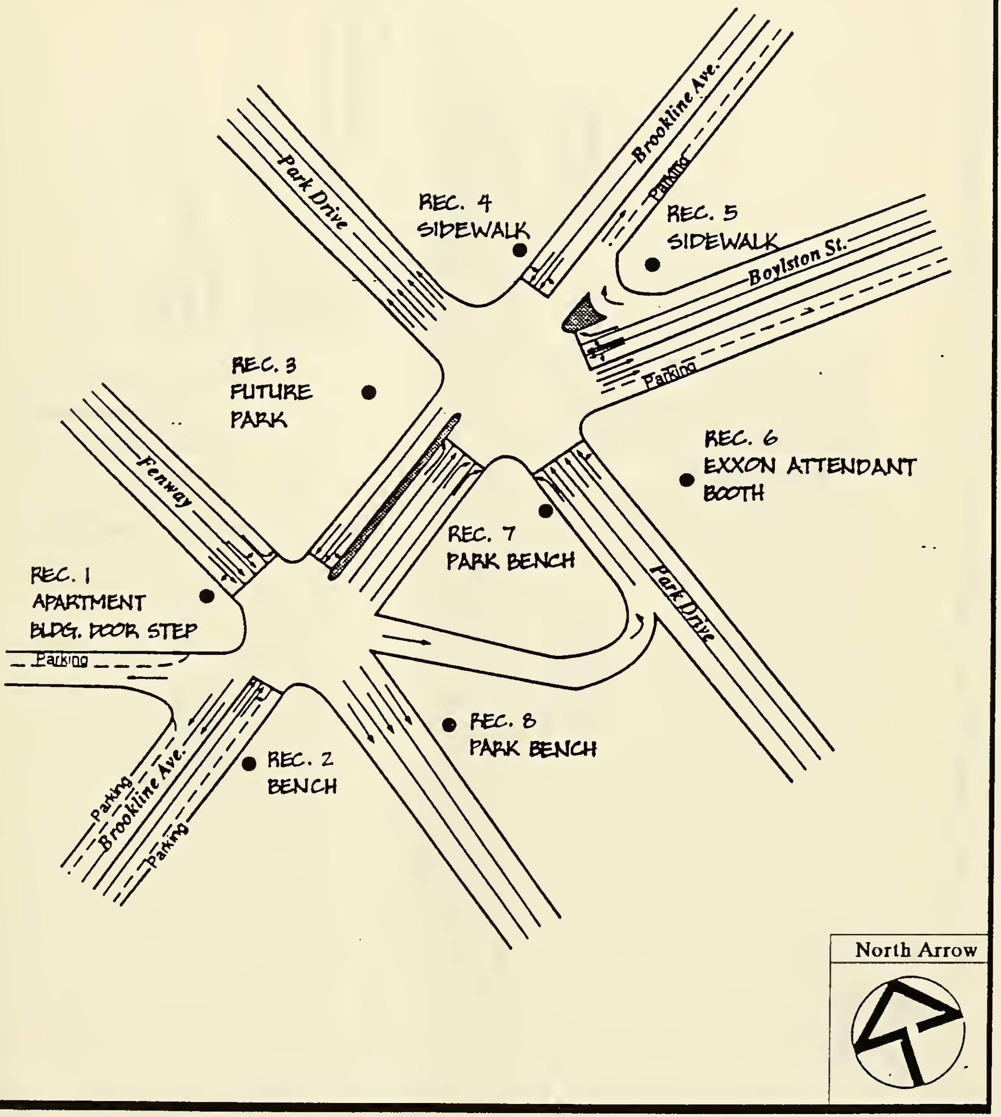
FIGURE 4.4-1

2. **Methodology** - The microscale analysis methodology used was consistent with DEP guidelines and the analysis completed for the Olmsted Plaza project. Two sequential mathematic models were used to predict CO concentrations and effects. The first, EPA's MOBILE model, was used to determine carbon monoxide concentrations emitted for a given vehicle at predetermined speeds. The second model, CAL3QHC-Modified, was used to determine carbon monoxide concentrations at the sensitive receptors located closest to the modeled intersections. This model assumes worst case conditions affecting air quality.

   The 44 sensitive receptors locations in this analysis are the same sensitive receptors locations used in the Olmsted Plaza air quality analysis. However, some of the location descriptions have been changed. Some stores have been replaced by others. A few bus stops no longer exist, therefore the sidewalk at the same locations have become the new location descriptions. The sensitive receptors are listed in Table 4.4-1 and is shown on Figures 4.4-2 through 4.4-10.

3. **Calculated CO Levels** - The microscale air quality analysis calculated maximum one-hour and eight-hour CO concentrations at the sensitive receptors situated near the study-area intersections. The results are not average ambient CO background levels; rather, they indicate peak concentrations that may exist during worst case meteorological conditions and peak traffic periods.

   The proposed Fenway Plaza project, like the Olmsted Plaza project, exhibits no exceedances of either the one-hour or eight-hour NAAQS (Refer to Table 4.4-1). In general, the results of the Fenway Plaza project show a reduction from the Olmsted Plaza project. This reduction is primarily the result of less traffic generation by the Fenway Plaza project. The Olmsted Plaza one-hour estimates range from 7.4 ppm to 16.1 ppm. One-hour estimates for Fenway Plaza range from 6.6 ppm to 19.8 ppm. The eight-hour estimates for Olmsted Plaza range from 4.5 ppm to 8.2 and the same analysis for Fenway Plaza yields eight-hour results that range from 4.0 ppm to 7.4 ppm. The difference in results at specific receptor locations is accountable to differences in predicted traffic generation rates and directional distribution.

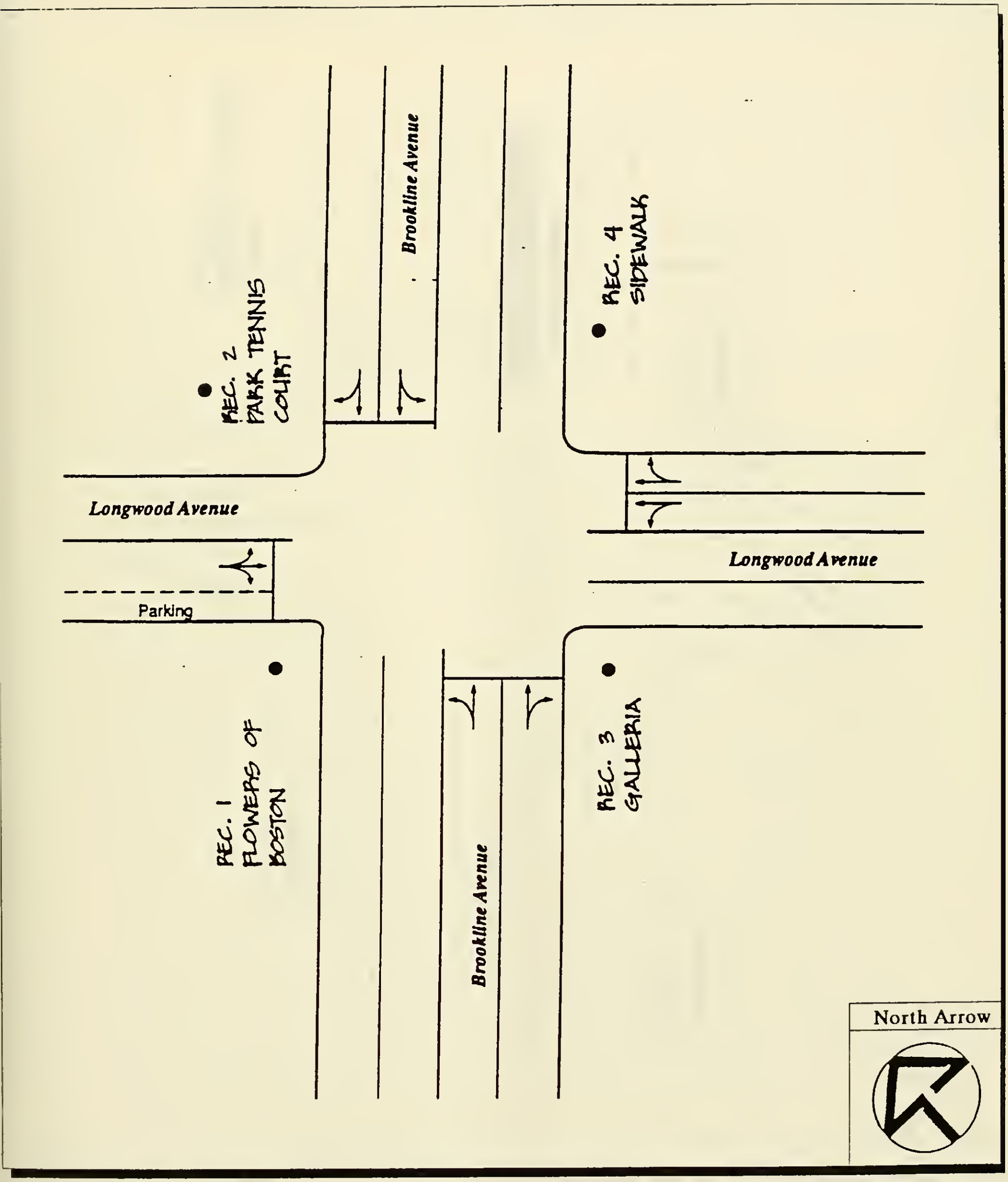


FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis
Scale: Not to Scale *Date: April, 1994*
Intersection No. 1
Boston, Massachusetts

FIGURE 4.4-2

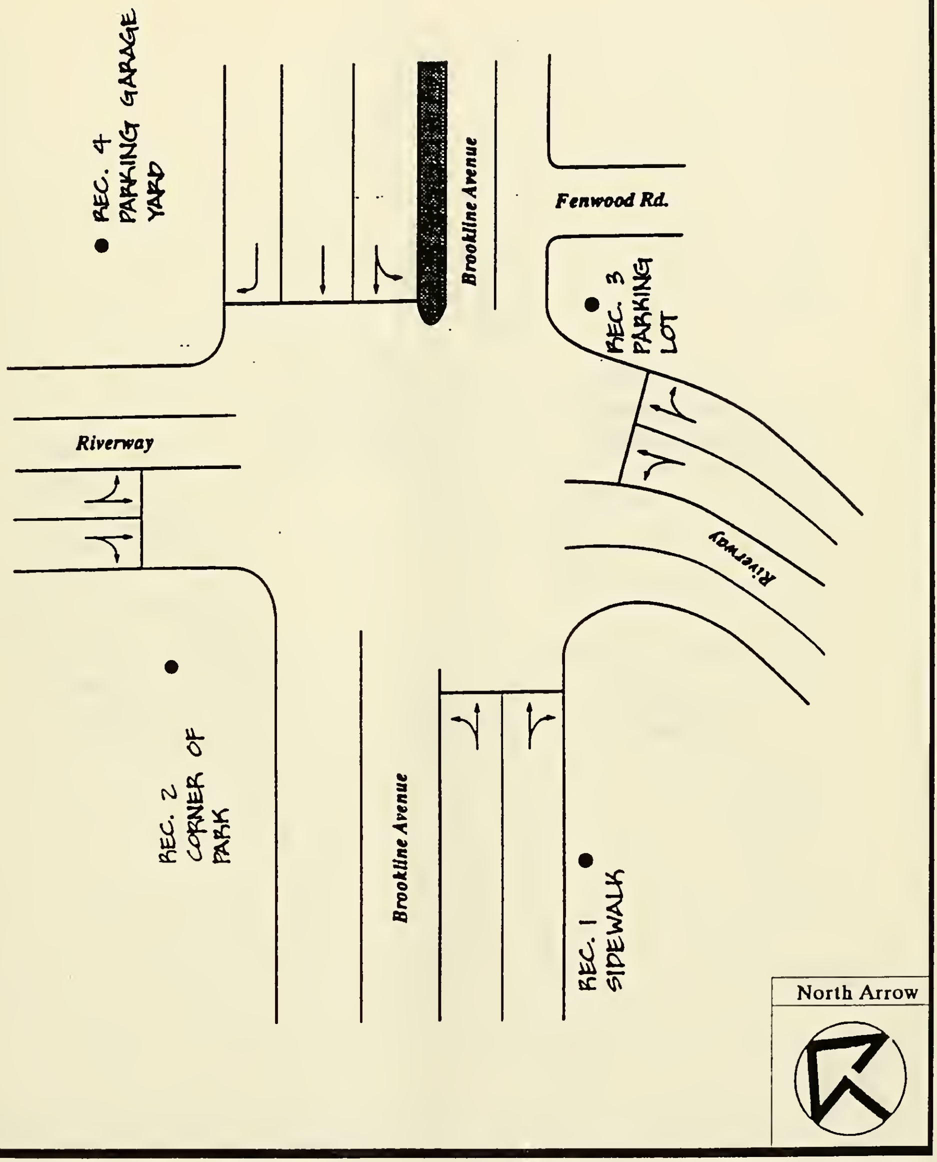


FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis
Scale: Not to Scale *Date: April, 1994*
Intersection No. 2
Boston, Massachusetts

FIGURE 4.4-3

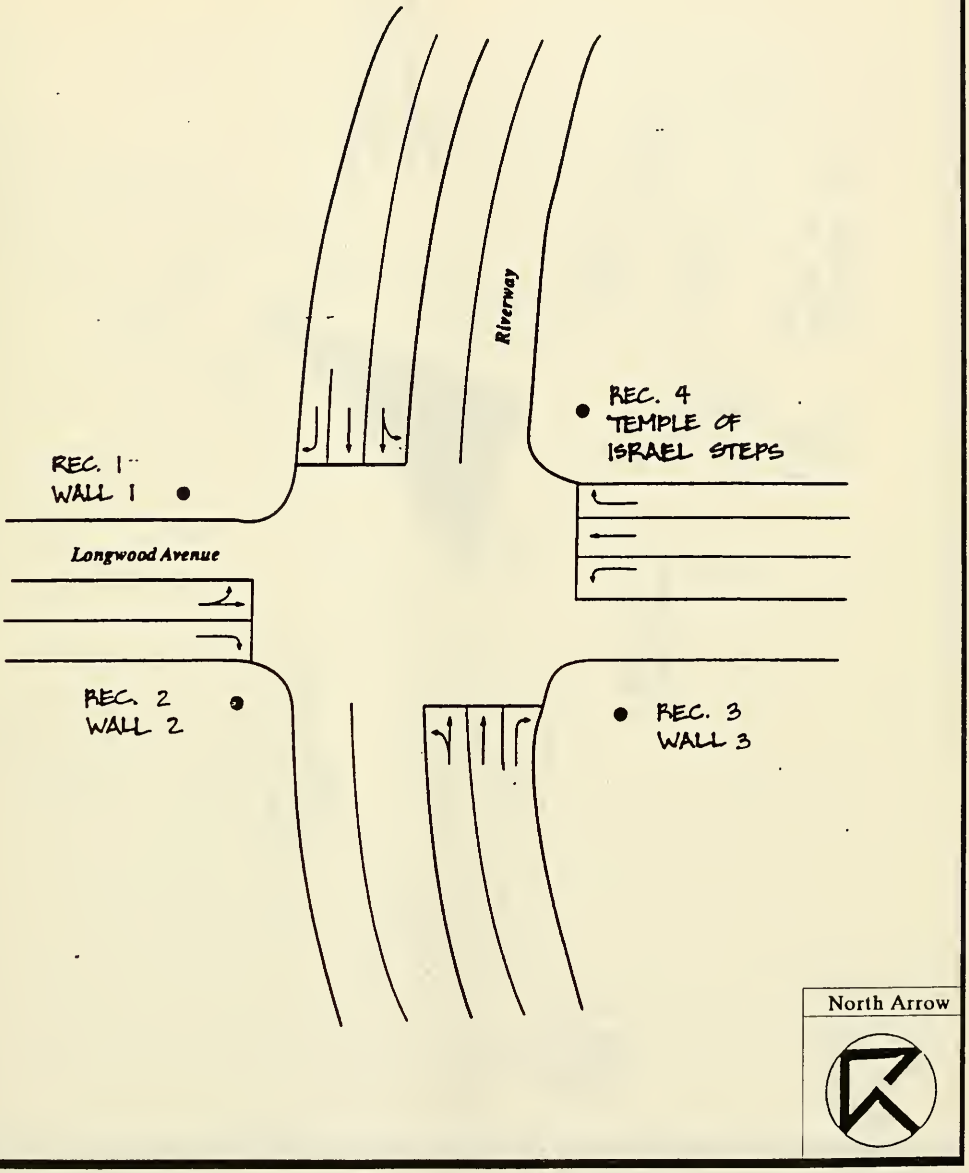


FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis
Scale: Not to Scale *Date: April, 1994*
Intersection No. 3
Boston, Massachusetts

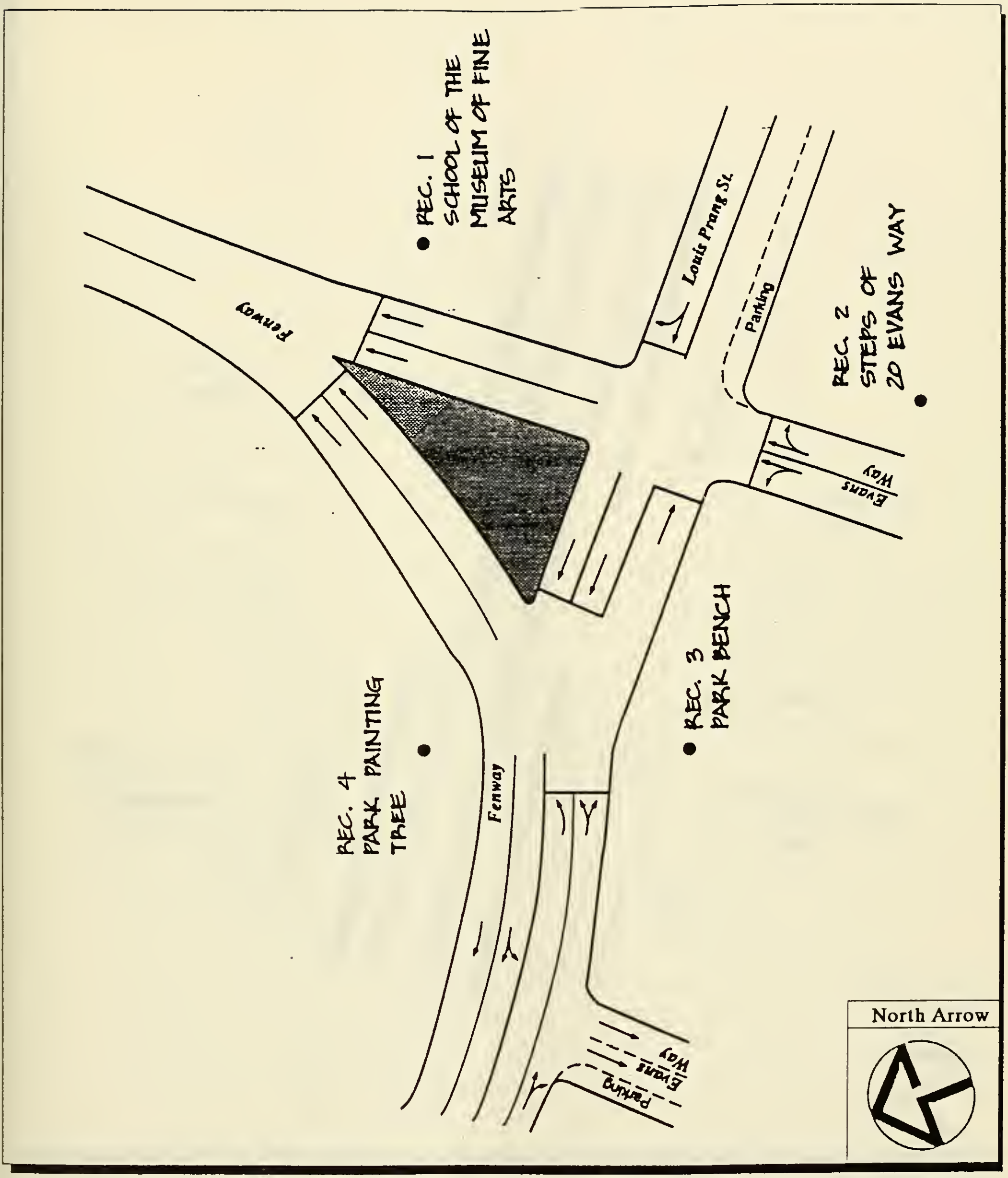
FIGURE 4.4–4



FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis
Scale: Not to Scale *Date: April, 1994*
Intersection No. 4
Boston, Massachusetts
FIGURE 4.4-5



FENWAY PLAZA
BOSTON, MASSACHUSETTS

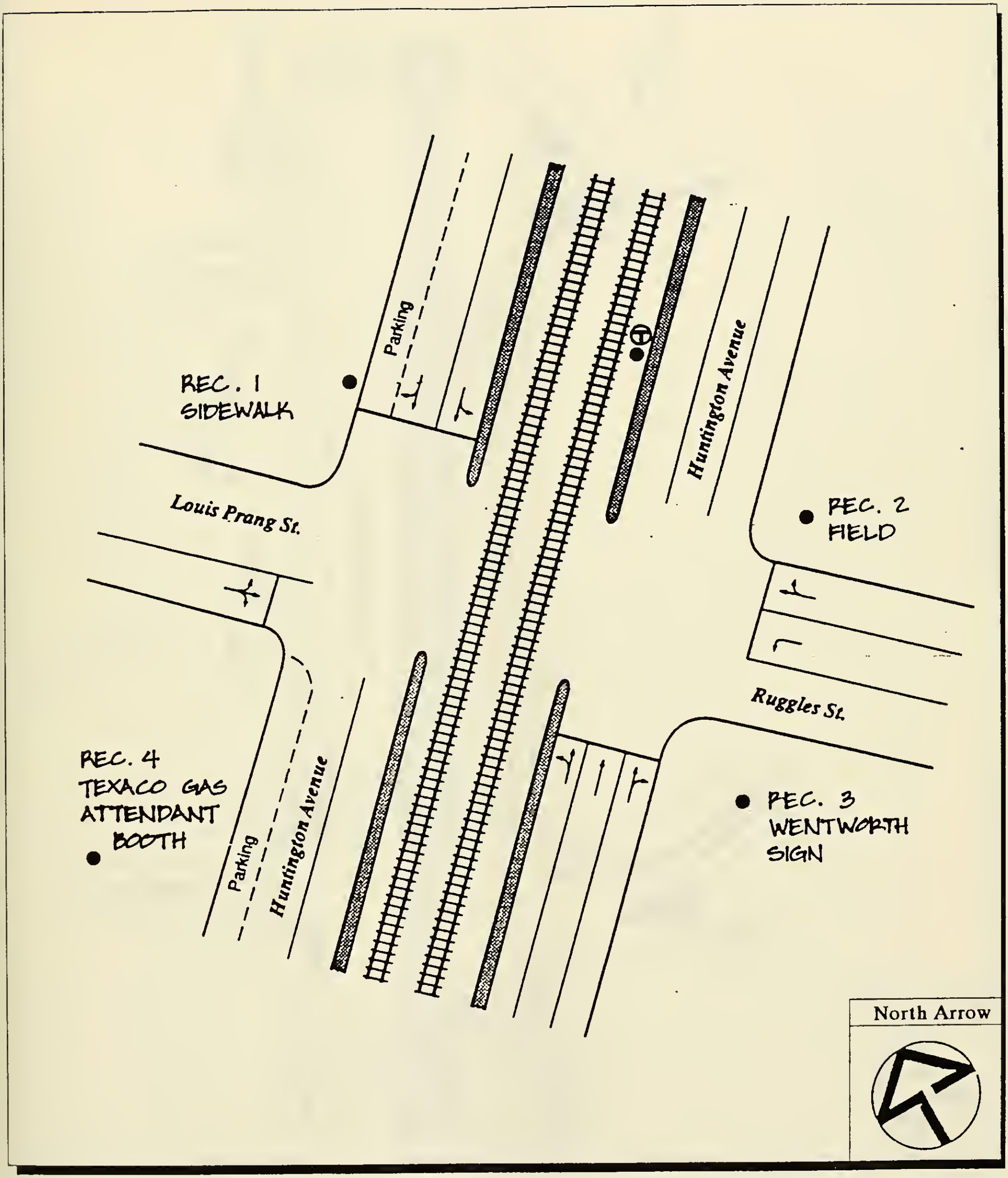
For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Intersection No. 5
Boston, Massachusetts

FIGURE 4.4–6

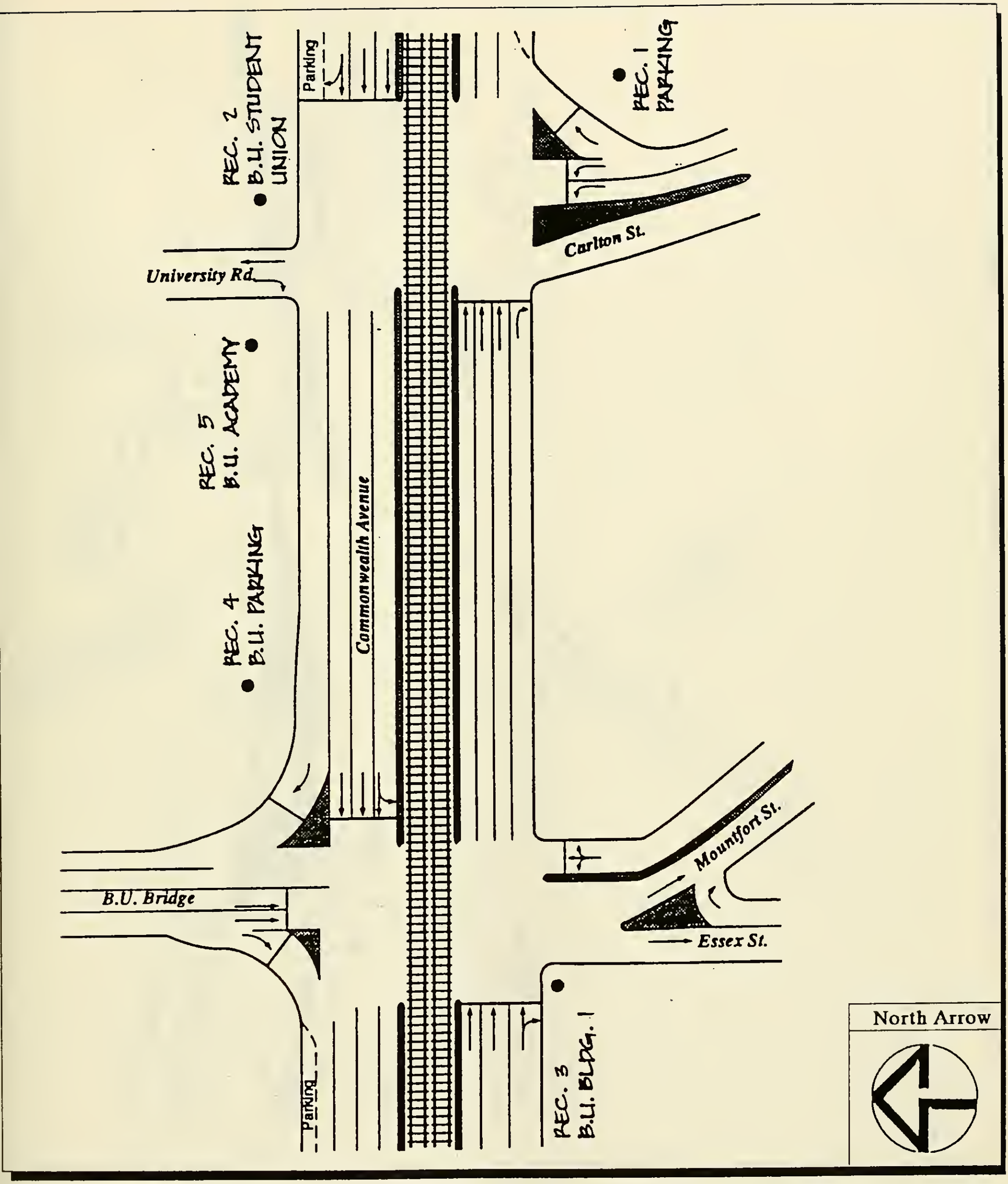


FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis
Scale: Not to Scale *Date: April, 1994*
Intersection No. 6
Boston, Massachusetts

FIGURE 4.4–7



FENWAY PLAZA
BOSTON, MASSACHUSETTS

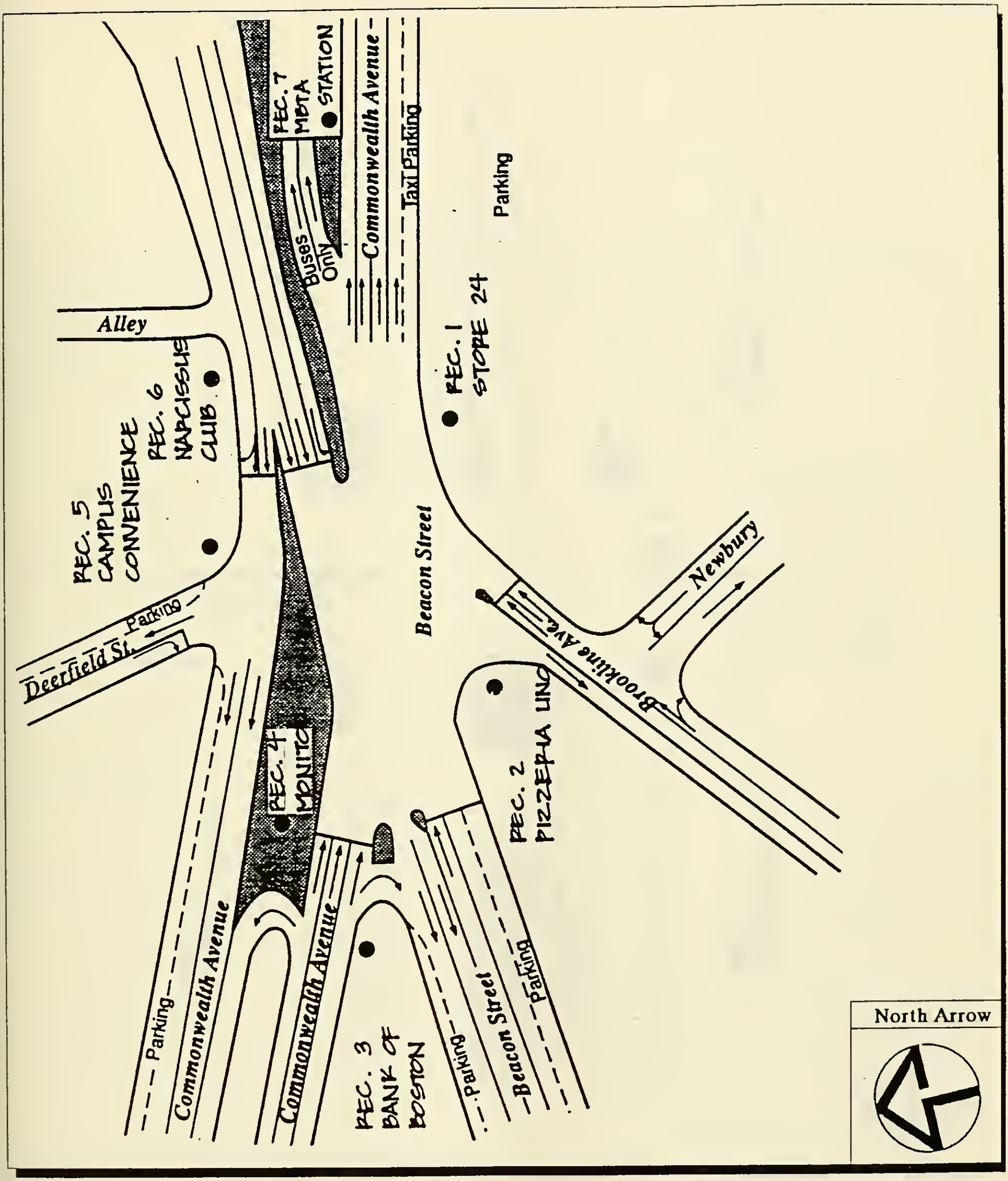
For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Intersection No. 7
Boston, Massachusetts

FIGURE 4.4–8



FENWAY PLAZA
BOSTON, MASSACHUSETTS

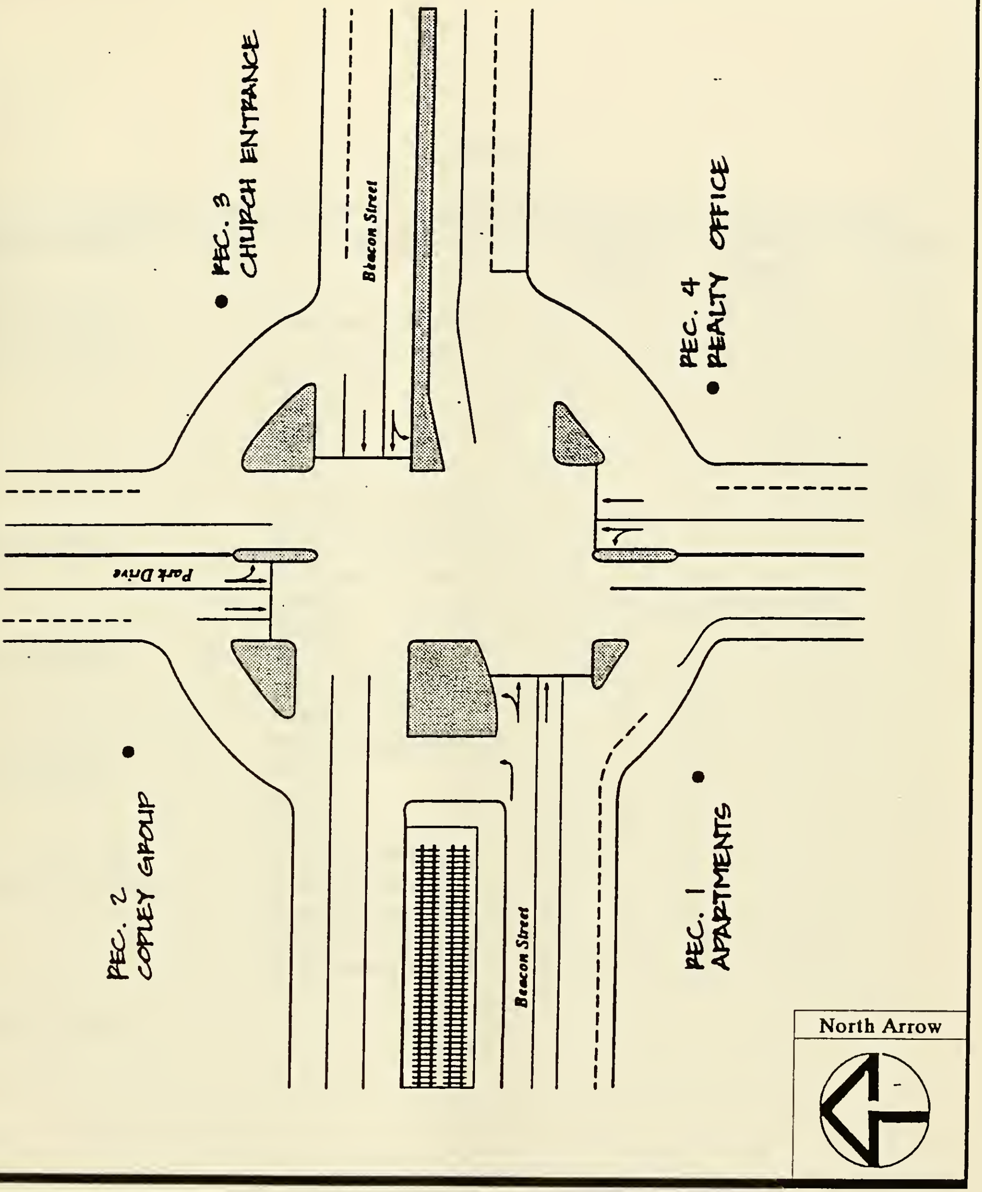
For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Intersection No. 8
Boston, Massachusetts

FIGURE 4.4–9



FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Microscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Intersection No. 9
Boston, Massachusetts

FIGURE 4.4–10

TABLE 4.4-1

INTERSECTION ANALYSIS; MAXIMUM PREDICTED CO IMPACTS (PPM)*

INTERSECTION	NO.	RECEPTOR	OLMSTED PLAZA		FENWAY PLAZA		NAAQS	
			1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Brookline/Fenway and Brookline/Park/Boylston	1	Apartment Doorstep	16.1	7.6	17.0	7.0	35	9
	2	Bench on Brookline	10.0	5.0	19.7	4.7	35	9
	3	Future park	9.1	5.0	12.8	5.0	35	9
	4	Sidewalk	12.8	6.4	19.5	7.0	35	9
	5	Sidewalk	13.2	6.4	14.2	6.2	35	9
	6	Exxon Booth	12.9	6.0	13.6	5.8	35	9
	7	Park Bench on Park	15.6	8.1	16.6	7.4	35	9
	8	Park Bench on Fenway	8.9	4.5	10.7	4.1	35	9
Brookline/Longwood	1	Flowers of Boston	11.2	5.8	11.5	5.8	35	9
	2	Park Tennis Courts	11.0	5.9	19.8	5.5	35	9
	3	Galleria	12.5	6.5	13.4	6.7	35	9
	4	Sidewalk	11.2	5.7	12.1	6.0	35	9
Brookline/Riverway	1	Sidewalk SW	14.8	7.9	12.1	6.6	35	9
	2	Corner of Park NW	10.8	5.4	9.7	5.1	35	9
	3	Parking Lot SE	13.6	6.9	10.0	5.7	35	9
	4	Parking Garage Yard	11.1	5.6	10.2	5.7	35	9
Riverway/Longwood	1	Wall 1	10.6	5.7	10.0	5.4	35	9
	2	Wall 2	13.4	6.4	11.9	6.0	35	9
	3	Wall 3	10.1	5.0	9.7	5.1	35	9
	4	Temple Israel Steps	10.0	5.3	9.3	5.2	35	9
Fenway/Louis Prang/Evans	1	School of M.F.A.	7.4	4.1	6.6	3.7	35	9
	2	Steps, 20 Evans Way	8.7	4.7	9.4	4.7	35	9
	3	Park Bench	9.5	5.9	8.4	4.7	35	9
	4	Park Painting Tree	8.8	5.5	8.7	4.7	35	9

Continued on next page.

TABLE 4.4-1

INTERSECTION ANALYSIS; MAXIMUM PREDICTED CO IMPACTS (PPM)* (Cont'd)

INTERSECTION	NO.	RECEPTOR	OLMSTED PLAZA		FENWAY PLAZA		NAAQS	
			1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Huntington/Louis Prang/ Ruggles	1	Sidewalk	15.1	8.2	9.2	5.0	35	9
	2	Field	11.2	5.8	9.1	5.0	35	9
	3	Wentworth Sign	12.1	6.7	9.3	5.2	35	9
	4	Texaco Booth	9.3	5.1	7.3	4.0	35	9
Commonwealth/B.U. Bridge & Commonwealth/ University Road	1	Parking Lot	12.8	7.1	12.5	6.7	35	9
	2	B.U. Student Union	11.8	5.9	9.6	5.5	35	9
	3	B.U. Bldg. #1	19.3	6.3	11.8	6.4	35	9
	4	B.U. Parking	19.9	6.2	11.5	5.6	35	9
	5	B.U. Academy	13.0	6.1	10.5	5.7	35	9
Kenmore Square	1	Store 24	10.3	5.6	8.5	4.6	35	9
	2	Pizzeria Uno	9.5	4.8	8.4	4.6	35	9
	3	Bank of Boston	14.1	6.8	13.5	7.4	35	9
	4	Kenmore Monitor	10.5	5.6	11.6	6.5	35	9
	5	Campus Con.	12.2	6.3	9.8	5.2	35	9
	6	Narcissus Club	13.6	7.1	10.9	5.7	35	9
	7	MBTA Station	11.9	6.1	11.0	5.6	35	9
Beacon/Park	1	Apartment Entrance	10.1	5.4	8.4	4.6	35	9
	2	Copley Group	9.7	5.3	8.0	4.2	35	9
	3	Church Entrance	10.8	6.0	8.0	4.2	35	9
	4	Realty Office	9.6	5.2	8.9	4.4	35	9

*CO estimates include 5 ppm (1-hour) and 3 ppm (8-hour) background levels.

4.4.4 Garage and Surface Parking Analysis

A microscale air quality analysis of the impacts from the proposed parking garage and surface parking lot on nearby sensitive receptors was conducted. Garage emissions were estimated using U.S. EPA guidance (Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9 (Revised): Evaluating Indirect Sources, EPA-450/4-78-001). The sensitive receptor locations analyzed were the same 12 locations analyzed for the Olmsted Plaza project. These include those sensitive receptors shown on Figures 4.4-2 and 4.4-10. these intersections and receptors are within the 400 meter range of the project. The results of this analysis are shown in Table 4.4-2.

TABLE 4.4-2

GARAGE AND SURFACE PARKING CO IMPACTS (PPM)

INTERSECTION	**NO.**	**RECEPTOR**	**OLMSTED PLAZA**		**FENWAY PLAZA**	
			1-Hr	8-Hr	1-Hr	8-Hr
Brookline/Fenway and	1	Apartment Doorstep	0.7	0.3	0.6	0.4
Brookline/Park/Boylston	2	Bench on Brookline	1.5	0.7	0.5	0.4
	3	Future park	1.1	0.5	1.0	0.7
	4	Sidewalk	1.5	0.7	1.4	1.0
	5	Sidewalk	2.5	1.2	1.1	0.8
	6	Exxon Booth	1.5	0.7	0.8	0.6
	7	Park Bench on Park	1.2	0.6	0.8	0.6
	8	Park Bench on Fenway	1.3	0.6	0.6	0.4
Beacon/Park	1	Apartment Entrance	2.3	1.0	0.6	0.5
	2	Copley Group	1.4	0.6	0.6	0.4
	3	Church Entrance	2.1	0.9	0.6	0.4
	4	Realty Office	2.5	1.1	0.6	0.5

4.4.5 Cumulative Results: Intersections and Parking

The results shown in Table 4.4-3 show the cumulative Build with Mitigation Condition CO impacts of the intersection and the Fenway Plaza project parking in the sensitive receptors. The results from the same analysis from the same analysis for the Olmsted Plaza project are also provided for comparison. The results show that there are no exceedances of the NAAQS or Massachusetts goal of 8.5 ppm for the 8-hour analysis. Generally, the results for the Fenway Plaza project are lower than the results of the Olmsted Plaza project analysis. These lower CO levels generally result from the lower traffic generation associated with the new project. At a few receptors, the Fenway Plaza results are higher due to changes in expected directional distribution of vehicle trips.

TABLE 4.4-3

CUMULATIVE CO IMPACTS: INTERSECTIONS AND PARKING (PPM)*

INTERSECTION	NO.	RECEPTOR	OLMSTED PLAZA		FENWAY PLAZA		NAAQ	
			1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-
Brookline/Fenway and Brookline/Park/Boylston	1	Apartment Doorstep	16.7	7.9	17.6	7.4	35	9
	2	Bench on Brookline	11.5	5.7	20.2	5.1	35	9
	3	Future park	10.2	5.5	13.8	5.7	35	9
	4	Sidewalk	14.3	7.1	20.9	8.0	35	9
	5	Sidewalk	15.7	7.6	15.3	7.0	35	9
	6	Exxon Booth	14.4	6.7	14.4	6.4	35	9
	7	Park Bench on Park	16.8	8.7	17.4	8.0	35	9
	8	Park Bench on Fenway	10.2	5.1	11.3	4.5	35	9
Brookline/Longwood	1	Flowers of Boston	11.2	5.8	11.5	5.8	35	9
	2	Park Tennis Courts	11.0	5.9	19.8	5.5	35	9
	3	Galleria	12.5	6.5	13.4	6.7	35	9
	4	Sidewalk	11.2	5.7	12.1	6.0	35	9
Brookline/Riverway	1	Sidewalk SW	14.8	7.9	12.1	6.6	35	9
	2	Corner of Park NW	10.8	5.4	9.7	5.1	35	9
	3	Parking Lot SE	13.6	6.9	10.0	5.7	35	9
	4	Parking Garage Yard	11.1	5.6	10.2	5.7	35	9

Continued on next page.

TABLE 4.4-3

CUMULATIVE CO IMPACTS: INTERSECTIONS AND PARKING (PPM)*

INTERSECTION	NO.	RECEPTOR	OLMSTED PLAZA		FENWAY PLAZA		NAAQS	
			1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Riverway/Longwood	1	Wall 1	10.6	5.7	10.0	5.4	35	9
	2	Wall 2	13.4	6.4	11.9	6.0	35	9
	3	Bench	10.1	5.0	9.7	5.1	35	9
	4	Temple Israel Steps	10.0	5.3	9.3	5.2	35	9
Fenway/Louis Prang/Evans	1	School of M.F.A.	7.4	4.1	6.6	3.7	35	9
	2	Steps, 20 Evans Way	8.7	4.7	9.4	4.7	35	9
	3	Park Bench	9.5	5.9	8.4	4.7	35	9
	4	Park Painting Tree	8.8	5.5	8.7	4.7	35	9
Huntington/Louis Prang/ Ruggles	1	Sidewalk	15.1	8.2	9.2	5.0	35	9
	2	Field	11.2	5.8	9.1	5.0	35	9
	3	Wentworth Sign	12.1	6.7	9.3	5.2	35	9
	4	Texaco Booth	9.3	5.1	7.3	4.0	35	9
Commonwealth/B.U. Bridge & Commonwealth/ University Road	1	Parking Lot	12.8	7.1	12.5	6.7	35	9
	2	B.U. Student Union	11.8	5.9	9.6	5.5	35	9
	3	B.U. Bldg. #1	19.3	6.3	11.8	6.4	35	9
	4	B.U. Parking	19.9	6.2	11.5	5.6	35	9
	5	B.U. Academy	13.0	6.1	10.5	5.7	35	9
Kenmore Square	1	Store 24	10.3	5.6	8.5	4.6	35	9
	2	Pizzeria Uno	9.5	4.8	8.4	4.6	35	9
	3	Bank of Boston	14.1	6.8	13.5	7.4	35	9
	4	Kenmore Monitor	10.5	5.6	11.6	6.5	35	9
	5	Campus Con.	12.2	6.3	9.8	5.2	35	9
	6	Narcissus Club	13.6	7.1	10.9	5.7	35	9
	7	MBTA Station	11.9	6.1	11.0	5.6	35	9
Beacon/Park	1	Apartment Entrance	12.4	6.4	9.0	5.1	35	9
	2	Copley Group	11.1	5.9	8.6	4.6	35	9
	3	Church Entrance	12.9	6.9	8.6	4.6	35	9
	4	Realty Office	12.1	6.3	9.5	4.9	35	9

*CO estimates include 5 ppm (1-hour) and 3 ppm (8-hour) background levels.

4.4.6 Mesoscale Analysis

The mesoscale analysis serves two major purposes. First, it provides documentation supporting the State Implementation Program (SIP) for compliance with the Federal Clean Air Act. Second, it assists the project proponent in determining the implementation of feasible measures to reduce or minimize environmental impacts. A mesoscale analysis was not required during the environmental processes for the Olmsted Plaza project.

The mesoscale air quality analysis has been conducted according to Massachusetts Department of Environmental Protection, Division of Air Quality Control, (DEP/DAQC) Guidelines for Performing Mesoscale Analysis of Indirect Sources, dated May 1991. The analysis estimates the volatile organic compound (VOC) hydrocarbon mobile source emissions generated by project related traffic within the defined study area. VOC emissions are estimated as an indicator of possible ozone formation. In sunlight, certain hydrocarbons react and form the gas ozone. Ozone at high altitudes is beneficial to the earth as a shield from potentially damaging solar ultra-violet rays. However, ozone at the lower habitable altitudes can be harmful because it is highly reactive, and in large concentrations, it can be damaging to respiratory systems. Ozone formation is relatively complex and somewhat unpredictable due to the numerous variables involved. It is not necessarily formed immediately adjacent to congested roadways, and it is not feasible to estimate local ambient concentrations. Therefore, VOC emissions are estimated as an indicator of possible ozone formation in a region and are not necessarily indicative of a health risk from ozone in a specific locale.

Generally, the VOC hydrocarbon emissions for the project study area are estimated in the following progression. First, the roadway links in the study area are evaluated with the estimated traffic volumes to determine the critical traffic flow characteristics. The estimated traffic volumes are the Average Daily Traffic (ADT's) for each link and are developed by the transportation planner for the project. Second, these critical traffic flow characteristics are used to determine VOC emission rates. Link lengths in miles are obtained from available cartographic information usually consisting of a quadrangle map from the United States Geological Survey (USGS). The products of ADT's and link lengths are vehicle miles traveled (VMT) per link. VOC emission rates are obtained for each analysis year and link travel speed by utilizing the EPA computer model, MOBILE. The products of the VOC emission rates and VMT in the study area are the predicted volatile organic compound hydrocarbon emissions per link for the particular analysis condition.

1. **The Mesoscale Study Area** - The typical minimum requirements for a mesoscale study area is the network of links surrounding a project site which meet at intersections that will potentially experience an increase of 10 percent in traffic due to the project and which currently operate at Level of Service (LOS) D or lower or will be degraded to a LOS D or lower.

   Several intersections in the study area currently exist with a Level of Service (LOS) of D or lower. In addition, the following intersections are estimated to be degraded to a LOS D or lower due to the proposed project:

   - Park Drive at Brookline Avenue/Boylston Street
   - Kenmore Square
   - Commonwealth Avenue at the B.U. Bridge
   - Brookline Avenue at Longwood Avenue
   - The Riverway at Longwood Avenue
   - Huntington Avenue at Prang/Ruggles Street
   - Brookline Avenue at Fullerton Street
   - The Fenway at Prang/Evans Way
   - Brookline Avenue at the Riverway

   The following roadway links are predicted to experience an increase of at least 10% by comparison of the average daily traffic for the 1999 No-Build Conditions and the 1999 Build Condition:

   - The Fenway from the Riverway to Brookline Avenue
   - The Fenway from Brookline Avenue to Avenue Louis Pasteur
   - Park Drive from Brookline Avenue to the Riverway

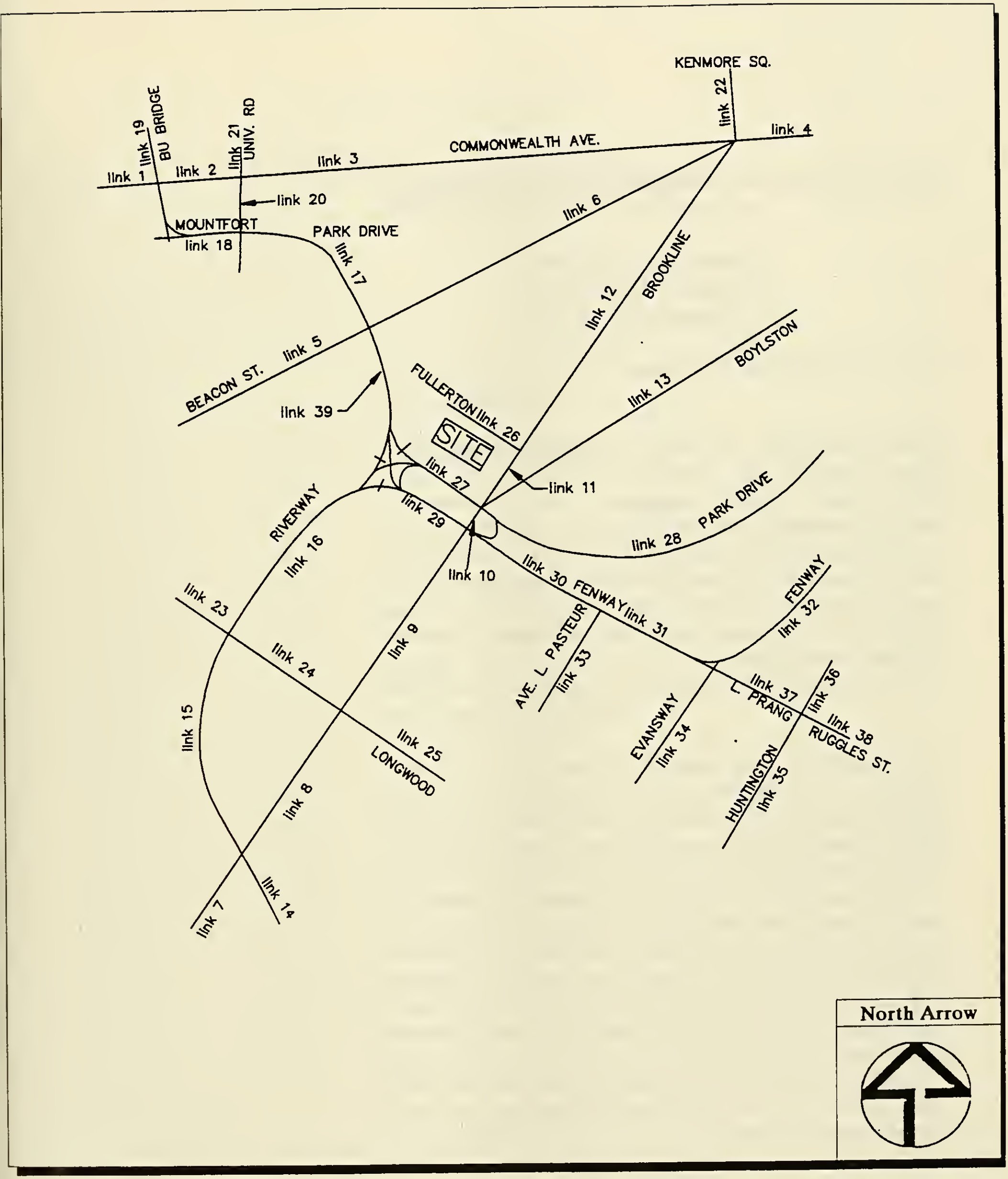
   The following roadway links are predicted to experience an increase of at least 10% by comparison of the peak hour traffic for the 1999 No-Build Conditions and the 1999 Build Conditions:

- Brookline Avenue from Boylston Street (Brookline) to the Riverway
- Brookline Avenue from the Riverway to Longwood Avenue
- Brookline Avenue from Longwood to the Fenway
- Brookline Avenue from Fenway to Park Drive
- Brookline Avenue from Park Drive to Fullerton Street
- Brookline Avenue from Fullerton Street to Kenmore Square
- Riverway from Brookline Avenue to Longwood Avenue
- Riverway from Longwood Avenue to Fenway/Park Drive
- Boylston Street from Park Drive to Brookline Avenue
- Park Drive from the Fens crossover to Brookline Avenue
- Park Drive from Brookline Avenue to the Riverway
- Park Drive from Riverway to Beacon Street
- Park Drive from Mountfort Street to Beacon Street
- Fenway from Riverway to Brookline Avenue
- Fenway from Brookline Avenue to Avenue Louis Pasteur
- Fenway from Avenue Louis Pasteur to Evans Way
- Avenue Louis Prang from Huntington to Fenway
- Ruggles Street from East to Huntington Avenue
- Longwood Avenue from Huntington Avenue to Brookline Avenue
- Longwood Avenue from Brookline Avenue to the Riverway
- Longwood Avenue from Riverway to Harvard Avenue (Brookline)
- Fullerton Street North of Brookline Avenue

Additional roadway links have been incorporated into the study area in order to include traffic origination links and intermediate traffic links. The more expansive study area provides a better estimate of air quality impacts relative to the region than the minimum study area. The roadway links included in the study area are depicted on Figure 4.4-12 and include:

Link 1: Commonwealth Avenue from St. Pauls Street to B.U. Bridge
Link 2: Commonwealth Avenue from BU Bridge to University Road
Link 3: Commonwealth Avenue from University Road to Kenmore Square
Link 4: Commonwealth Avenue from Kenmore Square to Charlesgate west
Link 5: Beacon Street from St. Pauls Street to Park Drive
Link 6: Beacon Street from Park Drive to Commonwealth Avenue
Link 7: Brookline Avenue from Boylston Street (Brookline) to Riverway
Link 8: Brookline Avenue from Riverway to Longwood
Link 9: Brookline Avenue from Longwood to Fenway
Link 10: Brookline Avenue from Fenway to Park Drive
Link 11: Brookline Avenue from Park Drive to Fullerton Street
Link 12: Brookline Avenue from Fullerton Street to Commonwealth Avenue
Link 13: Boylston Street from Brookline to Park Drive
Link 14: Riverway from Brookline Avenue to Huntington Avenue
Link 15: Riverway from Longwood Avenue to Brookline Avenue
Link 16: Riverway from Longwood Avenue to Park Drive
Link 17: Park Drive from Mountfort Street to Beacon Street
Link 18: Mountfort Street from BU Bridge to University Road
Link 19: BU Bridge from Commonwealth Avenue to Memorial Drive
Link 20: University Road from Park Drive to Commonwealth Avenue
Link 21: University Road from Commonwealth Avenue to Storrow Drive

Link 22: Deerfield Street Square from Commonwealth Avenue to Bay State Road
Link 23: Longwood Avenue from Riverway to Harvard Street
Link 24: Longwood Avenue from Riverway to Brookline Avenue
Link 25: Longwood Avenue from Brookline Avenue to Huntington Avenue
Link 26: Fullerton Street to Brookline Avenue
Link 27: Park Drive from Riverway to Brookline Avenue
Link 28: Park Drive from Brookline Avenue to the Fens crossover
Link 29: Fenway from the Riverway to Brookline Avenue
Link 30: Fenway from Brookline Avenue to Ave. L. Pasteur
Link 31: Fenway from Ave. L. Pasteur to Evansway
Link 32: Fenway from Evansway to the Fens crossover
Link 33: Ave. L. Pasteur from Fenway to Longwood Avenue
Link 34: Evansway from Fenway to Longwood Avenue
Link 35: Huntington Avenue from L. Prang to Longwood Avenue
Link 36: Huntington Avenue from L. Prang to Forsyth Street
Link 37: L. Prang from Evansway to Huntington Avenue
Link 38: Ruggles Street from Huntington to Tremont Street
Link 39: Park Drive from Riverway to Beacon Street



FENWAY PLAZA
BOSTON, MASSACHUSETTS

For: New England Development
By: Beals and Thomas, Inc.
Westborough, Massachusetts

Mesoscale Air Quality Analysis

Scale: Not to Scale *Date: April, 1994*

Study Area Plan
Boston, Massachusetts

FIGURE 4.4–11

2. **The Mesoscale Study Conditions** - The mesoscale study conditions for analysis are the following:

    - 1994 Existing Conditions
    - 1999 No-Build Conditions
    - 1999 Build Conditions

    These study conditions coincide with the Traffic Analysis study conditions.

3. **Emission Calculations** - The EPA computer model, MOBILE was used to calculate the volatile organic compound (VOC) emission factors which were subsequently used to estimate the VOC emissions for each link of the study area. The DEP/DAQC has determined 1) which parameters would be adjusted for state, local, or site specific characteristics, and 2) which national average parameters should be used. The inputs to the model also include the parameters for Massachusetts Specific Registration Distribution by Age, dated August 1993, as issued by the DEP/DAQC.

    The DEP Guidelines do not provide a methodology to estimate the effectiveness of mitigation by modeling changes in average daily vehicular speed, average daily vehicular delays at intersections or ADT reductions from successful traffic demand reduction measures such as carpooling or measures in use of public transportation. It is not practical or feasible to calculate these changes from condition to condition on typical MEPA projects. The average vehicular travel speed for each link is based on observations and analyses of roadway conditions and characteristics. VOC emission factors at these speeds were generated from the U.S. EPA MOBILE computer model. The resultant emission factors for the vehicular speeds were then multiplied by the vehicle miles traveled for each link to obtain estimated VOC emissions for each link in gm/day.

    The Mesoscale Analysis using the DEP Guidelines Method results are presented in Tables 4.4-4 through 4.4-6. The total VOC emissions in the study area are estimated to be

505.87 Kg/day for the 1994 Existing Conditions; 461.84 Kg/day for the 1999 No-Build Conditions; and 473.35 Kg/day for the 1999 Build Conditions. The 1999 Build Conditions results are lower than the 1994 Existing Conditions results due to the predicted increase in the percentage of vehicles with advanced pollution controls which will reduce emissions. This analysis predicts that 1999 Build Conditions traffic will increase VOC emissions within the study area above 1999 No-Build Conditions. However, the increases in emissions will be reduced by proposed project mitigation measures.

TABLE 4.4–4
AVERAGE DAILY TRAFFIC TOTAL VOC EMISSIONS MESOSCALE AIR QUALITY ANALYSIS FOR 1994 EXISTING CONDITIONS DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
1	0.263	35,500	9,336.50	30	1.99	18,579.64
2	0.085	41,900	3,561.50	30	1.99	7,087.39
3	0.605	26,920	16,286.60	25	2.25	36,644.85
4	0.224	57,330	12,841.92	20	2.63	33,774.25
5	0.875	21,830	19,101.25	35	1.79	34,191.24
6	0.441	20,600	9,084.60	35	1.79	16,261.43
7	0.375	13,430	5,036.25	25	2.25	11,331.56
8	0.237	25,110	5,951.07	25	2.25	13,389.91
9	0.322	31,690	10,204.18	30	1.99	20,306.32
10	0.053	32,330	1,713.49	30	1.99	3,409.85
11	0.013	15,700	204.10	30	1.99	406.16
12	0.329	15,700	5,165.30	25	2.25	11,621.93
13	0.427	30,130	12,865.51	30	1.99	25,602.36
14	0.329	31,430	10,340.47	35	1.79	18,509.44
15	0.300	28,570	8,571.00	35	1.79	15,342.09
16	0.421	23,920	10,070.32	35	1.79	18,025.87
17	0.362	16,550	5,991.10	40	1.63	9,765.49
18	0.138	20,700	2,856.60	30	1.99	5,684.63
19	0.243	38,300	9,306.90	30	1.99	18,520.73
20	0.079	24,030	1,898.37	35	1.79	3,398.08
21	0.066	12,100	798.60	35	1.79	1,429.49
22	0.079	2,000	158.00	35	1.79	282.82
23	0.559	23,000	12,857.00	25	2.25	28,928.25
24	0.171	10,610	1,814.31	20	2.63	4,771.64
25	0.414	19,350	8,010.90	20	2.63	21,068.67

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TABLE 4.4–4
AVERAGE DAILY TRAFFIC
TOTAL VOC EMISSIONS
MESOSCALE AIR QUALITY ANALYSIS FOR 1994 EXISTING CONDITIONS
DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
26	0.066	1,500	99.00	25	2.25	222.75
27	0.099	25,470	2,521.53	25	2.25	5,673.44
28	0.217	15,200	3,298.40	25	2.25	7,421.40
29	0.079	19,400	1,532.60	30	1.99	3,049.87
30	0.197	10,800	2,127.60	30	1.99	4,233.92
31	0.230	21,030	4,836.90	25	2.25	10,883.03
32	0.395	5,920	2,338.40	25	2.25	5,261.40
33	0.250	8,000	2,000.00	20	2.63	5,260.00
34	0.191	3,000	573.00	20	2.63	1,506.99
35	0.526	23,880	12,560.88	30	1.99	24,996.15
36	0.625	21,410	13,381.25	30	1.99	26,628.69
37	0.231	16,010	3,698.31	20	2.63	9,726.56
38	0.408	18,270	7,454.16	25	2.25	16,771.86
39	0.171	19,290	3,298.59	35	1.79	5,904.48

TOTAL VOC EMISSIONS (KG/DAY) 505.87

1072MSEX.WK1&FMT

TABLE 4.4–5
AVERAGE DAILY TRAFFIC
TOTAL VOC EMISSIONS
MESOSCALE AIR QUALITY ANALYSIS FOR 1999 NO–BUILD CONDITIONS
DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
1	0.263	37,270	9,802.01	30	1.72	16,859.46
2	0.085	43,990	3,739.15	30	1.72	6,431.34
3	0.605	28,270	17,103.35	25	1.97	33,693.60
4	0.224	60,200	13,484.80	20	2.32	31,284.74
5	0.875	22,920	20,055.00	35	1.54	30,884.70
6	0.441	21,630	9,538.83	35	1.54	14,689.80
7	0.375	14,100	5,287.50	25	1.97	10,416.38
8	0.237	26,360	6,247.32	25	1.97	12,307.22
9	0.322	33,270	10,712.94	30	1.72	18,426.26
10	0.053	33,950	1,799.35	30	1.72	3,094.88
11	0.013	16,490	214.37	30	1.72	368.72
12	0.329	16,490	5,425.21	25	1.97	10,687.66
13	0.427	31,640	13,510.28	30	1.72	23,237.68
14	0.329	33,000	10,857.00	35	1.54	16,719.78
15	0.300	30,000	9,000.00	35	1.54	13,860.00
16	0.421	25,110	10,571.31	35	1.54	16,279.82
17	0.362	17,380	6,291.56	40	1.40	8,808.18
18	0.138	21,730	2,998.74	30	1.72	5,157.83
19	0.243	40,210	9,771.03	30	1.72	16,806.17
20	0.079	25,230	1,993.17	35	1.54	3,069.48
21	0.066	12,700	838.20	35	1.54	1,290.83
22	0.079	2,100	165.90	35	1.54	255.49
23	0.559	24,150	13,499.85	25	1.97	26,594.70
24	0.171	11,140	1,904.94	20	2.32	4,419.46
25	0.414	20,320	8,412.48	20	2.32	19,516.95

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1072MSNB.WK1&FMT

TABLE 4.4–5
AVERAGE DAILY TRAFFIC
TOTAL VOC EMISSIONS
MESOSCALE AIR QUALITY ANALYSIS FOR 1999 NO–BUILD CONDITIONS
DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
26	0.066	2,500	165.00	25	1.97	325.05
27	0.099	26,740	2,647.26	25	1.97	5,215.10
28	0.217	15,960	3,463.32	25	1.97	6,822.74
29	0.079	20,370	1,609.23	30	1.72	2,767.88
30	0.197	11,340	2,233.98	30	1.72	3,842.45
31	0.230	22,080	5,078.40	25	1.97	10,004.45
32	0.395	6,220	2,456.90	25	1.97	4,840.09
33	0.250	8,400	2,100.00	20	2.32	4,872.00
34	0.191	3,150	601.65	20	2.32	1,395.83
35	0.526	25,070	13,186.82	30	1.72	22,681.33
36	0.625	22,470	14,043.75	30	1.72	24,155.25
37	0.231	16,810	3,883.11	20	2.32	9,008.82
38	0.408	19,180	7,825.44	25	1.97	15,416.12
39	0.171	20,250	3,462.75	35	1.54	5,332.64

TOTAL VOC EMISSIONS (KG/DAY) 461.84

1072MSBD.WK1&FMT

TABLE 4.4–6
AVERAGE DAILY TRAFFIC TOTAL VOC EMISSIONS MESOSCALE AIR QUALITY ANALYSIS FOR 1999 BUILD CONDITIONS DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
1	0.263	37,700	9,915.10	30	1.72	17,053.97
2	0.085	44,330	3,768.05	30	1.72	6,481.05
3	0.605	28,270	17,103.35	25	1.97	33,693.60
4	0.224	60,950	13,652.80	20	2.32	31,674.50
5	0.875	24,290	21,253.75	35	1.54	32,730.78
6	0.441	21,630	9,538.83	35	1.54	14,689.80
7	0.375	14,550	5,456.25	25	1.97	10,748.81
8	0.237	23,590	5,590.83	25	1.97	11,013.94
9	0.322	33,330	10,732.26	30	1.72	18,459.49
10	0.053	35,160	1,863.48	30	1.72	3,205.19
11	0.013	17,240	224.12	30	1.72	385.49
12	0.329	17,240	5,671.96	25	1.97	11,173.76
13	0.427	31,810	13,582.87	30	1.72	23,362.54
14	0.329	34,130	11,228.77	35	1.54	17,292.31
15	0.300	31,340	9,402.00	35	1.54	14,479.08
16	0.421	26,870	11,312.27	35	1.54	17,420.90
17	0.362	18,700	6,769.40	40	1.40	9,477.16
18	0.138	22,570	3,114.66	30	1.72	5,357.22
19	0.243	40,660	9,880.38	30	1.72	16,994.25
20	0.079	25,710	2,031.09	35	1.54	3,127.88
21	0.066	12,840	847.44	35	1.54	1,305.06
22	0.079	2,100	165.90	35	1.54	255.49
23	0.559	24,570	13,734.63	25	1.97	27,057.22
24	0.171	11,140	1,904.94	20	2.32	4,419.46
25	0.414	20,320	8,412.48	20	2.32	19,516.95

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TABLE 4.4–6
AVERAGE DAILY TRAFFIC
TOTAL VOC EMISSIONS
MESOSCALE AIR QUALITY ANALYSIS FOR
1999 BUILD CONDITIONS
DEP GUIDELINE METHOD

LINK	LINK LENGTH (mi)	AVERAGE DAILY TRAFFIC	VEHICLE MILES TRAVELLED	ESTIMATED AVG DAILY TRAVEL SPEED (mph)	VOC EMISSION FACTOR (gm/mi)	TOTAL VOC FOR LINK (gm/day)
26	0.066	3,000	198.00	25	1.97	390.06
27	0.099	30,060	2,975.94	25	1.97	5,862.60
28	0.217	17,100	3,710.70	25	1.97	7,310.08
29	0.079	23,510	1,857.29	30	1.72	3,194.54
30	0.197	12,710	2,503.87	30	1.72	4,306.66
31	0.230	23,390	5,379.70	25	1.97	10,598.01
32	0.395	6,470	2,555.65	25	1.97	5,034.63
33	0.250	8,400	2,100.00	20	2.32	4,872.00
34	0.191	3,150	601.65	20	2.32	1,395.83
35	0.526	25,070	13,186.82	30	1.72	22,681.33
36	0.625	22,470	14,043.75	30	1.72	24,155.25
37	0.231	17,870	4,127.97	20	2.32	9,576.89
38	0.408	20,600	8,404.80	25	1.97	16,557.46
39	0.171	22,920	3,919.32	35	1.54	6,035.75

TOTAL VOC EMISSIONS (KG/DAY) 473.35

1072MSBD.WK1&FMT

4.4.7 Proposed Project Mitigation Measures

Traffic mitigation has been proposed that will also have significant positive impact on air quality. In general, any measures that move vehicles more efficiently by reducing delays will also reduce exhaust emissions. Slow moving and idling vehicles cause greater emissions, while faster moving vehicles utilize fuel more efficiently. Running vehicles at 49.8 mph produce the least emissions.

Air quality mitigation measures can be separated into two categories, "hard" mitigation and "soft" mitigation. "Hard" mitigation measures are those measures that involve physical improvements or changes to roadways and signals such as additional lanes, turning changes or operational changes. "Soft" mitigation measures are those measures that are intended to result in a reduction of vehicles on study area roadways.

The effects of most hard mitigation measures can be analyzed in a manner that quantifies changes in vehicular delays. These changes in vehicular delays can be used to estimate changes in vehicular emissions at signalized intersections. Hard mitigation measures are utilized in typical microscale air quality analyses of intersections. The hard mitigation measures have been incorporated into the comparative microscale evaluation of the project change from the Olmsted Plaza project to the Fenway Plaza project. On the other hand, it is impractical to quantify the estimated reduction of VOC's from the proposed hard mitigation measures by using the current methodology issued by DEP for mesoscale analyses. Any attempt at quantifying the effects of mitigation for the mesoscale analysis would be based on questionable estimates of changes in **average daily** vehicular delay, and **average daily** vehicular speed from condition to condition. Despite this current circumstance, a qualitative analysis can be presented.

Examples of soft mitigation include T-pass subsidies, car-pooling programs, etc. To date, there is no generally accepted data that can be used to make a practical, quantifiable evaluation of the success of soft mitigation in either microscale or mesoscale analyses. This is especially true for retail projects. However, urban retail projects, as opposed to suburban projects, are more likely to be more successful in fostering use of public transportation simply because of its availability and a city population's limited dependency on automobiles. Other land uses such as office buildings with a large commuter population can generate historical data on automobile use reduction programs.

The following are brief descriptions of both the hard and soft proposed mitigation measures and their effects on air quality. More detailed descriptions of these mitigation measures are included in the traffic analyses.

The mitigation includes the following components:

1. Roadway improvements at the following intersections: Park Drive and Beacon Street; Park Drive and Brookline Avenue/Boylston Street; Brookline Avenue at Fullerton Street; Park Drive at The Fenway; Commonwealth Avenue at Carlton Street; The Fenway at Evans Way/Louis Prang; and Riverway at The Fenway.
2. MBTA Green Line transit mitigation.
3. Bus transit mitigation.
4. A transit inducement program.
5. A comprehensive package of pedestrian mitigation, both on-and off-site.
6. A transportation monitoring program.

The proposed mitigation measures will minimize vehicular delay and therefore will minimize the amount of idling emissions. The mitigation measures should allow average daily vehicular speeds to be maintained at higher speeds and minimize vehicle emissions from decelerating and accelerating vehicles approaching the intersections. In addition, the proposed measures that will facilitate use of transportation alternatives are expected to reduce vehicular traffic and emissions.

NOTE: Pages 4-64 to 4-67 not used.

4.5 Wetlands/Floodplains

4.5.1 Introduction

Wetland resource areas were previously delineated as defined by the Massachusetts Wetlands Protection Act (MWPA) (MGL Chapter 131, Section 40) and Regulations (310 CMR 10.00). Under the regulations there are five inland wetland resource areas:

1. Bank
2. Land under water body or waterway
3. Bordering vegetated wetland
4. Bordering land subject to flooding
5. Isolated land subject to flooding.

The Olmsted Plaza DPIR/DEIR demonstrated that of the five inland wetland resource areas under the Massachusetts Wetlands Protection Act, (MWPA) only one of these resource areas, Bordering Land Subject to Flooding (BLSF), is applicable to the Site. The particular resource in question is the 100 year flood plain associated with the Muddy River. This is also true for the proposed Fenway Plaza project.

An inventory of existing resource data was previously conducted to determine if wetland resources were located on site. This review included U.S. Geological Survey (USGS) topographic maps, U. S. Fish and Wildlife Service National Wetlands Inventory maps and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM).

As a part of the preparation of this project a field investigation was conducted on April 4, 1994 to verify existing resource information and to characterize the existing conditions on the site. The following sections describe the existing resources located on and adjacent to the site as well as potential impacts and mitigation measures.

4.5.2 Existing Conditions

The Muddy River is located to the west of the site across Park Drive. In the area directly opposite the site it is culverted beneath a paved parking area via two 72-inch culverts. To the northwest and southeast of the site, adjacent to the culverted section, the Muddy River flows above-ground. In these segments of the river the banks are heavily vegetated with wetland plant species. The river and its associated wetland resources of bank, land under a waterway and bordering vegetated wetlands are more than 100 feet away from the site. Subsequently, the Fenway Plaza is located outside the 100-foot discretionary buffer zone associated with these resource areas.

Thus, the only wetland resource area potentially present on the site is bordering land subject to flooding (BLSF). This resource area is defined in 310 CMR 10.57(2)(a) of the MWPA regulations as:

- An area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, ponds or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland.

- The boundary of bordering land subject to flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm. Said boundary shall be that determined by reference to the most recently available flood profile data prepared for the community within which the work is proposed under the National Flood Insurance Program.

The National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) for this area of Boston (Community Panel 250286 0009C, effective date April 1, 1982) indicates that the 100-year floodplain associated with the Muddy River (Figure 4.5.1) at the project site lies between elevation 11.0 and 10.0 feet National Geodetic Vertical Datum (NGVD). The 100 year flood elevation for the site is assumed to be 10.5 feet NGVD. It should be noted that the City of Boston datum is 5.65 feet greater than NGVD.

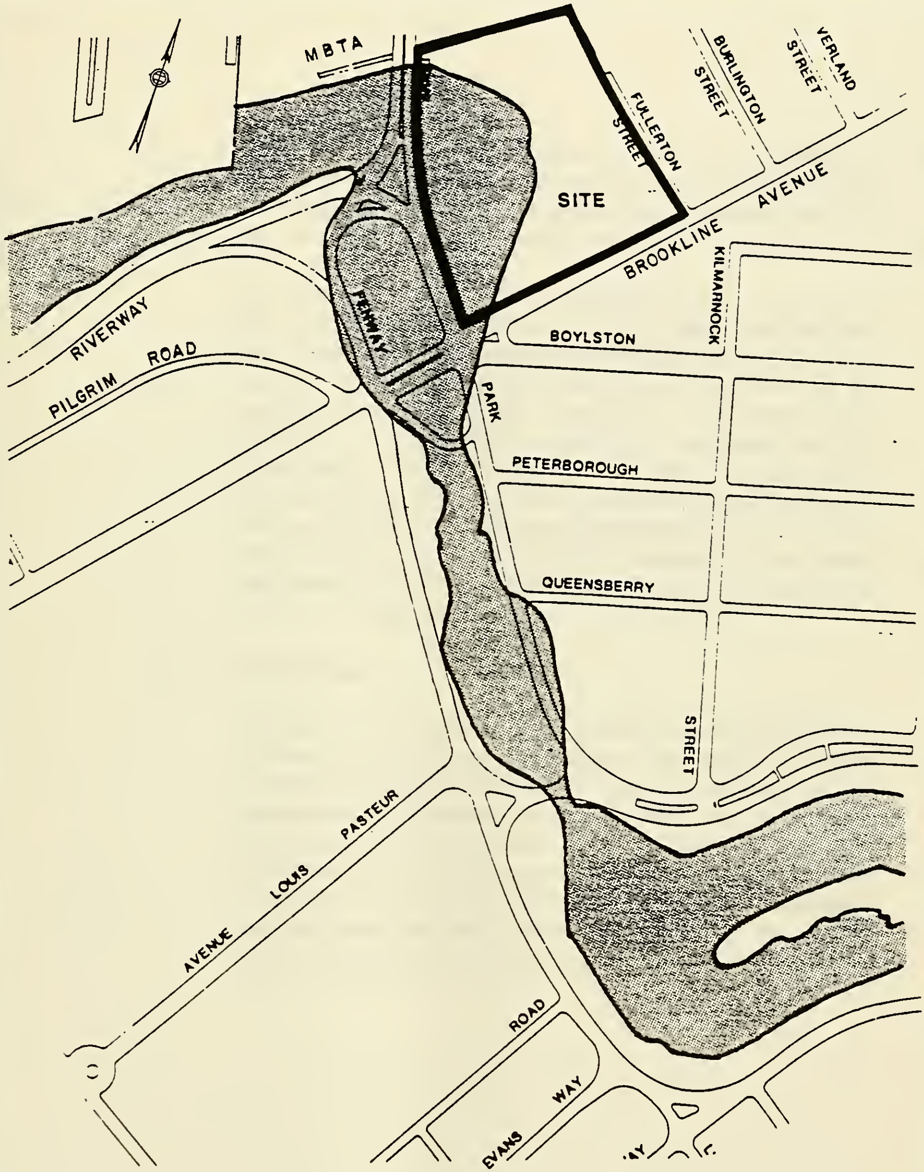


FIGURE 4.5-1
FEMA FLOOD INSURANCE RATE MAP

Therefore, the 16.15 foot elevation (City of Boston datum) is assumed to be the 100-year floodplain elevation. Figures 4.5-2 and 4.5-3 schematically indicate the approximate location of the 16.15 foot contour on the existing site and proposed site, respectively.

Almost all of the assumed BLSF on the site currently consists of paved bituminous parking areas and the existing Sears Building. The 100-year floodplain surrounds the existing Sears Building with only a small portion of upland above the 16.15 elevation at the front of the building adjacent to Park Drive. This upland area is most likely due to grading which was associated with the construction of the Sears Building. The area is currently paved with the exception of a small amount of landscaping so that there is little percolation of stormwater into the ground. In addition, the value of this resource area for wildlife is extremely low due to such factors as its location in an urban area, distance from a water body and lack of native vegetation.

4.5.3 Potential Impacts

Under the MWPA bordering land subject to flooding (BLSF) is presumed to be significant to the statutory interest of flood control and storm damage prevention. The 10-year floodplain is also considered to be significant to wildlife habitat with the exception of those areas which have been extensively altered by man (i.e., paved areas). As the existing site and proposed Fenway Plaza site is completely developed with limited landscaping, wildlife habitat would not be an applicable interest. Therefore, only the interests of flood storage and storm damage prevention apply to the project site.

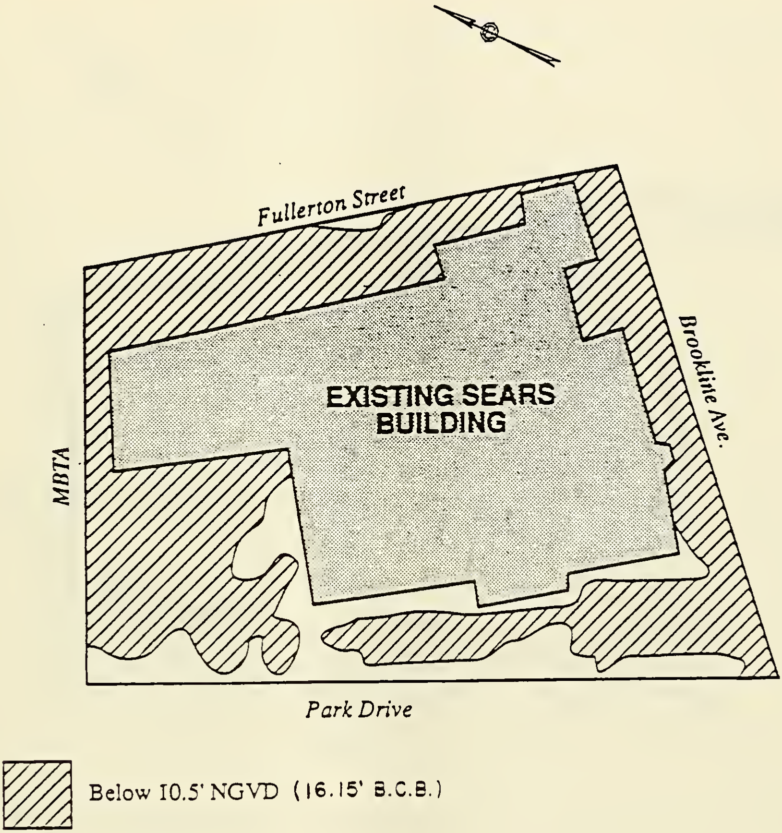


FIGURE 4.5-2
SCHEMATIC SITE PLAN INDICATING 100 - YEAR FLOODPLAIN
(EXISTING)

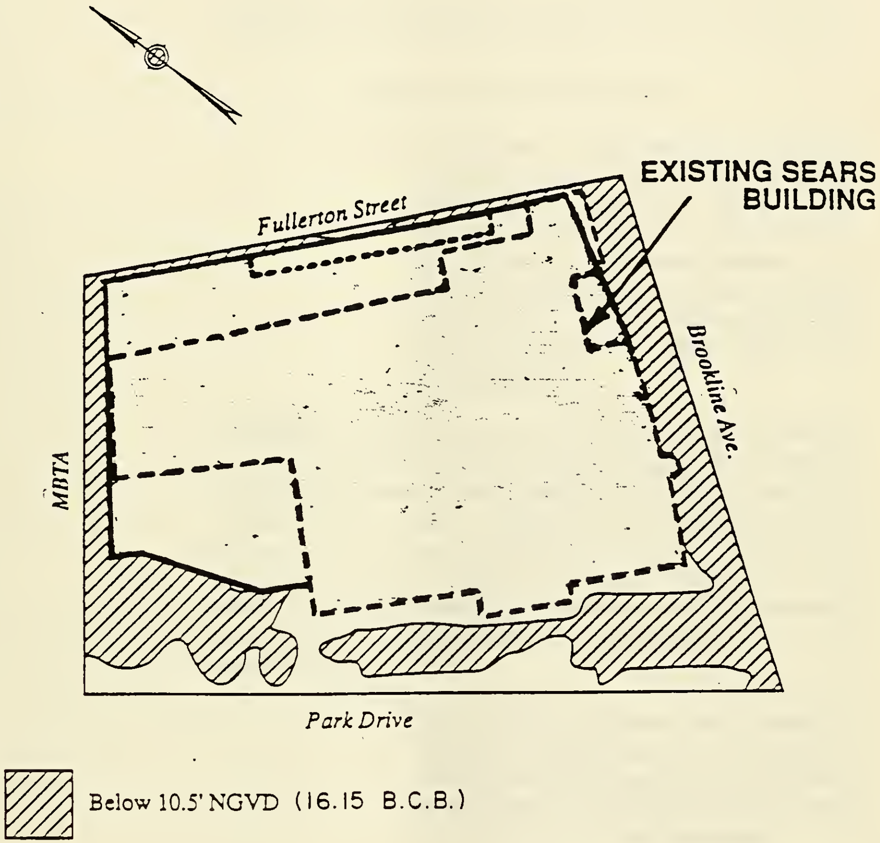


FIGURE 4.5-3
SCHEMATIC SITE PLAN INDICATING 100 - YEAR FLOODPLAIN
(PROPOSED)

Work within BLSF must meet the following general performance standards under 310 CMR 10.57(4)(a):

(a) Bordering Land Subject Flooding:

(1) Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within bordering land subject to flooding, when in the judgment of the issuing authority, said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of floodwaters during peak flows.

Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of floodwater at each elevation, up to and including the 100-year flood elevation; which would be displaced by the proposed Project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Further, with respect to waterways, such compensatory volume shall be provided within the same reach of the river, stream, or creek.

2. Work within bordering land subject to flooding, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.

3. Work in those portions of bordering land subject to flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to

impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold, or altering vernal pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.

Currently, essentially all of the existing 214,600 sf ground cover of Sears Building is located within the assumed 100-year floodplain, as shown in Figure 4.5-3. Under the currently proposed development for Fenway Plaza approximately 300,000 square feet of warehouse buildings located to the rear of the main building will be wholely or partially demolished in order to make room for the new retail development. The retail development will be a three story structure with a partial basement that will surround the easterly and northerly sides of the main Sears building. A substantial area of pavement will be removed and replaced with a new roof area. The existing landscaping will be enhanced. The resulting site surfaces will consist of approximately 72% of building roof area. 17% of paved areas and 11% of enhanced landscape areas.

The Olmsted Plaza project design was such that there would be no loss in flood storage capacity. The proposed Fenway Plaza Project design will also maintain no net loss of flood storage capacity. To the extent required, this will be accomplished by regrading the exterior parking lot areas to compensate for a 0.5 acre/foot loss of flood storage volume caused by ground floor building expansion within the 100-year floodplain, primarily between elevation 15 and 16.15 BCB.

4.5.4 Regulatory Overview

Work within wetlands in Massachusetts may involve several environmental permits including:

- Order of Conditions from the local Conservation Commission
- Water Quality Certification from DEP, Division of Water Pollution Control
- Section 404 Permit from the Army Corps of Engineers

In addition, work within the 100-year floodplain must meet certain Flood Emergency Management standards (e.g., first-floor living space above the 100-flood elevation). The proposed project will not involve the direct alteration of bank, land under water or bordering vegetated wetland. Subsequently, no Army Corps of Engineers permit will be required for the proposed project. In addition, a Water Quality Certificate is only required in conjunction with a Federal or State permit. As no permit is required, a Certificate will not be necessary. However, an Order of Conditions will be required for activities within the 100-year floodplain.

4.5.5 Water Quality

The Muddy River and the surrounding area is located within the Charles River Basin and Coastal Drainage Area which empties into Boston Harbor. The River is culverted immediately across Park Drive from the site but runs above-ground north and south of the Fenway Plaza site. The River has historically experienced water quality problems associated with industrial and urban runoff. Areas of the River upgradient of the site have been considered contaminated and clean-up programs have been proposed. Currently, the entire length of the Muddy River is classified as a Class B water under the Massachusetts Surface Water Quality Standards (314 CMR 4.00) dated 7/20/90.

Under theses standards, inland waters are assigned to one of three Classes: A, B, or C. Class A waters are designated for use as a source of public water supply, while Class B waters are designated as a habitat for fish, other aquatic life, and wildlife as well as both primary and secondary contact recreation. Class C waters are of lower quality and waters assigned to this class are designated as a habitat for fish, other aquatic life and wildlife and for secondary contact recreation. Table 4.5.-1 presents the minimum criteria which apply to all surface waters unless criteria specified for individual classes are more stringent. Table 4.5-2 presents an overview of the minimum water quality criteria for Class B waters.

4.5.6 Existing Conditions

Visual observations of the water quality of the Muddy River were noted during the field investigation. At the time of the site visit, no visual evidence of petroleum products were evident on the surface of the water. Urban runoff from the surrounding area, including the site, drains in to the River through a series of culverts and the Muddy River conduit. Water quality data for the River was obtained from the Department of Environmental Protection, division of Water Pollution Control. The Fenway Plaza project team has confirmed with the Division of Environmental Planning that this data remains current under the Olmsted Plaza DEIR. This data is summarized in Table 4.5-3. These data indicate that the Muddy River does not meet the minimum water quality standards for the Class B criteria (dissolved oxygen and fecal coliform bacteria).

4.5.7 Potential Impacts

Under existing conditions, approximately 158,000 sf of the site is comprised of paved areas primarily consisting of parking, 214,600 sf consists of buildings, and 14,800 sf is comprised of landscaped areas. Over 70 percent of the site runoff will consist of roof runoff which is typically considered "clean" compared to parking lot runoff which may potentially contain salt, oil and grease, and other contaminants. All of the runoff from the existing buildings and site currently enters building roof drains or catch basins which discharge to the street systems and in turn, to the Muddy River Conduit, eventually entering the Muddy River. Since there will be an increase in roof area and a decrease in paved parking area, the overall quality of runoff from the site will improve over existing conditions.

TABLE 4.5-1
MINIMUM MASSACHUSETTS SURFACE WATER CRITERIA

	Parameter	Criteria
1)	Aesthetics	All surface waters shall be free from pollutants in concentrations or combination that: a) Settle to form objectionable deposits; b) Float as debris, scum, or other matter to form nuisances; c) Produce objectionable odor, color, taste, or turbidity; or d) Produce undesirable or nuisance species of aquatic life.
2)	Radioactivity	All surface waters shall be free from radio-active substances in concentrations or combinations that would be harmful to human, animal or aquatic life exceeding the recommended limits for consumption by humans; or exceed Massachusetts Drinking Water Regulations
3)	Taste and Odor	None in such concentrations or combinations that are aesthetically objectionable, that would impair any use assigned to this Class, or that would cause tainting or undesirable flavors in the edible portions of aquatic life.
4)	Solids	These waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.
5)	Color and Turbitity	These waters shall be free from color and turbidity in concentrations or combinations that are aesthetically objectionable or would impair any use assigned to this class.
6)	Oil and Grease	These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.
7)	Nutrients	Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication.

8)	Toxic Pollutants	All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. Where a specific pollutant not otherwise listed in these regulations could regulations could reasonably be expected to adversely effect existing or designated uses, the recommended limit published by EPA pursuant to Section 304(a) of the Federal Act as the allowable receiving water concentration for the affected waters unless a site specific limit is established. Site-specific limits, human health risk levels and permit limits will be established in accordance with the following: specific requirements.
9)	Bottom Pollutants or Alterations	All surface waters shall be free from pollutants in concentrations or combinations or from alterations that adversely affect the physical or chemical nature of the bottom, interfere with the propagation of fish or shellfish, or adversely affect populations non-mobile or sessile benthic organisms.

TABLE 4.5-2
MINIMUM CLASS B WATER QUALITY CRITERIA

	Parameter	Criteria
1)	Dissolved Oxygen	Shall be a minimum of 5.0 mg/l in warm water fisheries and a minimum of 6.0 mg/l in cold water fisheries unless background conditions are lower.
2)	Temperature	Shall not exceed 68°F (20°C) in cold water fisheries nor 83°F (28.3°C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed 3°F (1.7°C) in rivers and streams designated as cold water fisheries nor 5°F (2.8°C) in rivers and streams designated as warm water fisheries.
3)	pH	Shall be in the range of 6.5-8.3 standard units and not more than 0.5 units outside of the background range.
4)	Fecal Coliform Bacteria	Shall not exceed a geometric mean of 200 organisms per 100 ml in any representative set of samples nor shall more than 10 percent of the samples exceed 400 organisms per 100 ml. This criterion may be applied on a seasonal basis as provided in 310 CMR 4.05.

TABLE 4.5-3
MUDDY RIVER WATER QUALITY DATA
(DEP, DWPC 9/10/86) *

SAMPLING AREA

Parameter	Back Bay Fens	Ipswich Road	Beacon Street
Temperature	68	67	67
pH	7.3	7.3	7.3
Dissolved Oxygen	4.5	7.2	5.5
Oil and Grease	N/A	N/A	0 (measured)
Fecal Coliform Bacteria	2,600	600	240

* The Fenway Plaza project team has confirmed with the Department of Environmental Protection that this data remains the latest data on record as of April 1994, and therefore is still applicable to the Fenway Plaza project.

Under the proposed conditions, building (roof) areas would be slightly increased to 277,950 sf, paved areas would be decreased to approximately 67,177 sf; while landscaped areas would increase to 37,945 sf. The potential pollutant loadings associated with Fenway Plaza will be reduced due to a number of factors. A parking garage will be utilized, substantially reducing open air parking and reducing parking lot surface by approximately 2 acres. Existing landscaping will be enhanced. The enhancement of existing landscaped areas will aid in the prevention of pollution and will reduce the rate of runoff from the site. New floor drains will be installed in the rehabiliated parking garage. These floor drains will be connected to the sanitary sewer system, as required by the Massachusetts State Plumbing code, through MDC gasoline-oil separators. This will further reduce the potential for water quality pollution beyond existing conditions.

4.5.8 Mitigation Measures

Although the Muddy River may not currently meet Class B water quality criteria, the proposed project must meet the anti-degradation provisions of 314 CMR 4.04. In all cases, the quality of surface waters must be maintained and protected to sustain existing beneficial uses. Discharges to the Muddy River must not cause the water quality of the River to fall below the criteria listed.

The existing parking area located across Park drive from the site on the so-called "missing link" parcel and containing 286 parking spaces will be eliminated. The missing link parcel of the Emerald Necklace park system will be donated and conveyed directly to the City for restoration by the City of this parcel as park land. The elimination of this parking area and its restoration by the City will eliminate the surface pavement runoff which potentially may contain salt, oil, grease, gasoline and other contaminants. This will contribute to the improvement of water quality for the Muddy River.

In order to prevent possible degradation of the water quality of the Muddy River, the following mitigation measures are proposed to maintain the quality of stormwater runoff leaving the site. No sodium chloride de-icing chemicals will be used on the site. If necessary, calcium chloride and/or a sand mixture will be used for safety purposes. Paved areas will be swept or vacuumed in accordance with the standard practice for facilities of this nature. All new catch basins will be fitted with oil and grease separators and sedimentation sumps. These structures will be inspected every six months and cleaned as necessary. As noted earlier, all stormwater runoff will be directed to the municipal street stormwater drainage system. The use of the parking garage will eliminate most open-air parking and will reduce pavement area and runoff at the site. In addition, there will also be a significant enhancement in the amount of landscaping over existing conditions. This will reduce the rate of runoff. (Additional mitigation measures will also be provided as described above in Section 4.5.7)

4.6 Geotechnical and Groundwater Impacts

4.6.1 Introduction

The following sections provide an analysis of the geotechnical and groundwater impacts of the proposed Fenway Plaza project. Included is a description of the existing subsoil and groundwater conditions, the proposed excavation and foundation construction, and their potential impacts. A comparison of foundations for the Fenway Plaza with those for the formerly proposed Olmsted Plaza project is also included.

Maps of Boston from the early 1800's show the site to be a marshy area adjacent to the Muddy River. Brookline Avenue, then known as Punch Bowl Road, is shown on a map dated 1836. However, significant development of the area around the Olmsted Plaza site does not appear to have begun until late 1870's and early 1880's. The Olmsted Plaza site itself was mostly undeveloped prior to construction of the Sears Building beginning in 1928.

4.6.2 Existing Conditions

Subsoil Conditions

The general subsurface soil conditions in this area of Boston are well documented. Subsurface explorations performed at the site in 1989 and 1994 indicated that the soils encountered were as expected. The site is generally flat, with ground surface elevations typically varying by less than 5 feet. Most of the area around the existing building is currently paved for automobile parking. Following is a description of the general subsurface soil types at the site, beginning at ground level.

- Asphalt or Concrete - Most of the site is topped with about 4 to 6 inches of asphalt pavement. Several areas on site, particularly around the loading docks, are paved with Portland cement concrete. The concrete thickness has been found to be about one foot thick at some locations, but may be thicker at other locations.

- Silty Sand and Gravel Fill -Paved areas on site are underlain by a layer of fill consisting of predominantly of silty sand and gravel with occasional brick fragments, cinders, wood, and other miscellaneous materials. The fill thickness ranges from about 6 to 15 feet, with a consistency varying between loose to very dense.

- Sand with Silt and Gravel - A layer of sand with silt and gravel was found below the fill in one boring performed on site and at borings performed at nearby sites. This layer is difficult to distinguish from the fill layer above. The primary distinction is the absence of man-made materials. This layer may be found in thicknesses of 20 feet or more, but it appears to be relatively discontinuous.

- Peat/Organic Silt - A layer of fibrous peat and/or organic silt was found at most on-site boring locations. This layer is typically found within 7.5 to 13 feet of the ground surface and has been found in thicknesses of up to 16 feet. The peat/organic silt is typically soft and highly compressible.

- Sand and Gravel with Silt - A layer of sand with varying amounts of gravel and silt is found at most boring locations on site beneath the peat/organic silt layer. This layer can be expected to vary in thickness from 0 to about 15 feet, and is relatively dense.

- Boston Blue Clay - A marine clay deposit known locally as Boston Blue Clay underlies the entire Fenway Plaza site, as well as most of the Fenway. The top of this layer was generally encountered within 17 to 28 feet of the ground surface and has been found to vary in thickness from approximately 110 to 170 feet.

- Glacial Till and Bedrock - Below the Boston Blue Clay, a layer of glacial till overlying bedrock can be expected. This stratum was encountered in one boring at a depth of approximately 170 feet, with a thickness of on the order of 5 to 15 feet thick. The glacial till is typically a dense, widely graded sand with clay, silt, gravel and boulders. Bedrock cores at two borings consisted of fractured, weathered argillaceous sandstone with diabase fragments.

As was the case with the Olmsted Plaza project, the primary concern with the subsoil conditions is the thick layer of clay. Because the clay is highly compressible, settlement of the proposed structures could occur for foundations bearing above the clay.

Groundwater Conditions

Groundwater levels have been measured in monitoring wells installed on site during geotechnical evaluations. The depth to groundwater generally ranged from about 9 to 13 feet below the asphalt parking surface. No elevation reference benchmark was readily available at the time of the water level measurements, so a relative elevation survey was performed. The maximum difference in groundwater elevations across the site was about 4 feet. Boring logs shown on plans from 1928 for the original Sears Building showed groundwater at an elevation ranging from about +8 feet to +15 feet Boston City Base (BCB). These higher elevations are possibly due to higher groundwater levels prior to significant development in this area. In addition, some of these readings may not have been taken in open boreholes rather than monitoring wells and may therefore be inaccurate.

The groundwater table is relatively flat. Groundwater flow directions are likely to be controlled by subterranean structures such as leaking sewers and water lines, as well as by surface water courses such as the Charles and Muddy Rivers. Small seasonal fluctuations will occur in groundwater elevations, although natural recharge to groundwater from precipitation is likely to be minimal due to the continuous asphalt pavement.

Structures On Site

The only structure currently on site is the Sears Building. The building consists of seven sections (Sections A through F, and Section M). All sections of the building have basements except Section M and the western portion of Section F. The basement elevation for building Sections A through D have recently been surveyed and found to have an elevation ranging from approximately +6 to +7 BCB. Foundations for Sections A through

D of the Sears Building are believed to consist of drilled piers bearing on the Boston Blue Clay. The 12-story tower section is believed to be supported on shallow piles driven to the top of the Boston Blue Clay. Sections E and part of F are believed to be supported on caissons and a mat foundation, respectively. The western portion of Section F is believed to be supported on pressure injected footings (PIFs). It is not known what foundation type was used for Section M.

Adjacent Below-Grade Structures

With the exception of the 116-inch by 120-inch Muddy River Conduit beneath Brookline Avenue, and normal buried utility conduits such as storm and sewer lines, no below-grade structures such as subway tunnels exist adjacent to the site.

4.6.3 Excavation

The current Fenway Plaza design scheme calls for constructing a basement, with a floor slab elevation of +7 BCB, in the area in the northeast portion of the site (Sections M, E, and part of F). A basement with a floor slab elevation of +7 BCB is also proposed for the area between Section B and the MBTA Green Line to the west. Section M currently has no basement, and Sections E and F have a basement with floor slab elevation approximately +7 BCB. Section E is supported on caissons bearing at the top of the clay, whereas the Section F slab is supported by footings bearing on natural soil or fill. The existing ground surface is approximately +16 BCB.

For a final design incorporating a basement with a floor slab elevation of +7 BCB, excavation is anticipated in Section M, in the area about 90 feet west of Section M north of the Section F basement, and in the area between Section B and the MBTA tracks. Allowing two feet for foundation construction (11 foot total excavation depth), this corresponds to an excavation volume of approximately 18,000 cubic yards.

Soils excavated for basement/foundation construction will be disposed of properly based on results of the "pre-characterization" exploration program described in Section 4.7.2 and additional monitoring/characterization during construction.

The design presented in the Olmsted Plaza DEIR had called for three new structures with partial basements. Two office buildings were to have basement floor elevations of +6 to +7 BCB with one-foot-thick floor slabs (10 to 11 foot excavation depth). The parking garage was to have a basement floor elevation of about +2 BCB. The excavation volume associated with Olmsted Plaza basements was estimated as 28,000 CY, greater than the Fenway Plaza design, with the excavated soils to be disposed of off-site.

4.6.4 Foundation Construction

Foundation Types

Because plans for the new buildings to be constructed on site have not been finalized and detailed geotechnical evaluations have not been performed at this time, the actual foundation types which will be used for the new buildings on site have not been finalized. However, foundations for new structures are likely to consist of either belled drilled piers bearing on the upper Boston Blue Clay or pressure injected footings ("PIFs") bearing on the sand layer above the Blue Clay. Because the sand layer is not known to be continuous across the site, the PIF option may not be feasible everywhere. Another possible option for buildings with basements will be a mat foundation bearing on the clay or overlying sand layer.

The foundation types described above are similar to those also envisioned for the Olmsted Plaza project. However, since the proposed Fenway Plaza buildings will only be three stories tall, as opposed to the Olmsted Plaza 9- and 13-story buildings, piles driven to glacial till or bedrock will be unnecessary due to lower structural loads.

Excavation Support Systems

As for the Olmsted Plaza project, excavation support systems will be required for some of the proposed Fenway Plaza structures, in particular, along Brookline Avenue and Fullerton Streets, and along the MBTA Green Line tracks. Conventional soldier pile and lagging systems or steel sheet piling, with tie-backs or internal bracing, may be used on the site to prevent damage to structures adjacent to the area of excavation.

Impacts on Adjacent Structures and Utilities

Structures near the site are not considered close enough to the proposed new buildings to be significantly impacted by the excavation. The excavation support systems that will be used during construction will provide sufficient lateral earth support to reduce the risk of damage to the structures nearest the site. It is anticipated that vibration monitoring will be performed at the site during demolition and installation of excavation support sheet piling to verify that no damage will occur to adjacent structures.

Utility lines on site and below nearby streets will be identified in cooperation with the appropriate utility companies prior to construction. Relocation of major utilities is not anticipated. Special consideration will be given to utilities identified as being especially sensitive to movement. Foundation construction and excavation support techniques will be chosen to minimize or eliminate ground movements.

Impacts on Groundwater Levels

Construction of +7 BCB floor slab elevation basements for buildings on site will likely require only minimal dewatering of the sand layer which overlies the Boston Blue Clay. Dewatering which occurs during construction is not expected to adversely impact area groundwater levels as excavation is unlikely to be more than a couple of feet below the groundwater table.

Groundwater levels in the vicinity of the site will be monitored throughout construction. If significant groundwater level changes occur which could adversely affect adjacent structures, remedial actions will be taken immediately.

4.7 Solid and Hazardous Materials/Waste

4.7.1 Introduction

The following section provides supplemental information concerning the extent of oil and hazardous materials (OHM) at the site based on environmental site assessments conducted since 1989, and compares the potential amount of solid and hazardous materials/waste from the proposed Fenway Plaza project versus the formerly proposed Olmsted Plaza project. Procedures for further characterization of soil and groundwater contamination of the site are described.

4.7.2 Potential for the Existence of Contaminated Soil or Groundwater

As previously documented in the Olmsted Plaza DPIR/DEIR, potential sources of OHM include the two, 20,000-gallon, No. 6 heating oil, underground storage tanks (USTs), situated at the west side of the Sears Building. In addition, previous environmental investigations and history searches have indicated that abandoned gasoline or other types of USTs may be present in the eastern portion of the site, near Building M. As part of the pre-construction effort, additional sub-surface explorations will be conducted to determine whether these suspected tanks in fact are present and if so plans will be prepared to remove them along with the two heating oil USTs.

Environmental Site Evaluations conducted by GZA in late 1989 and in 1992, detected the presence of low levels of OHM in soil and groundwater at the site. Contamination was detected in the fill in the form of Total Petroleum Hydrocarbons (TPH) in the western end of the site. A soil sample from the fill near Building M was reported to have chemical characteristics resembling that of gasoline. In addition, trace to very low levels of volatile organic compounds (VOCs) and TPH were detected in groundwater at the site. The site was listed by the DEP as a Confirmed Disposal Site in July 1990 (DEP Site No. 3-2949). Subsequently, the DEP granted a Waiver of Approvals for the site, designating it as a "non-priority" disposal site within the meaning of the Massachusetts Contingency Plan (MCP), 310 CMR 40.00. At the request of the BRA, a copy of the Waiver of Approvals and the 1992 Environmental Site Evaluation will be submitted to the BRA under separate cover.

Groundwater

Groundwater samples taken in September 1989 from 13 monitoring wells on the site, indicated very low concentrations of VOCs and TPH. Low levels of VOCs, ranging in concentrations from 0.005 to 0.023 ppm, were detected in five of the groundwater samples. Likewise, the detected concentration of TPH in groundwater was also very low. Two samples contained TPH at levels of 0.3 and 1.0 ppm. The levels of VOCs and TPH are below risk based cleanup standards and are otherwise not anticipated to be a risk to public health or the environment in accordance with the revised Massachusetts Contingency Plan.

The Contractor will be required to make provisions for monitoring and controlling the quality of pumped groundwater as necessary during dewatering operations and be required to secure discharge permits from the EPA and Boston Water and Sewer Commission, as is necessary.

Soil Disposal

The current design scheme calls for the construction of a basement, with a floor slab elevation of +7. A basement with a floor slab elevation of +7 BCB is also proposed for the area between Section B and the MBTA Green Line to the west. For the elevation +7 basement scenario, the construction will require excavation of about 18,000 cubic yards (CY) of soil material consisting of fill and peat. Approximately 90% of this total is comprised of urban fill material. The proposed excavation for the +7 basement option is less than the 28,000 CY of soil planned to be removed for the Olmsted Plaza project.

The documented evidence of limited soil contamination at the site will require certain actions to be undertaken to characterize the chemical make-up of the soil prior to actual construction excavation. This is being accomplished through a comprehensive sub-surface exploration and sampling program. This "pre-characterization" exploration program is focused in those areas of the site where soil will be excavated for the building foundations and basement areas and in other areas where contamination is known to exist. The goal of the pre-characterization is the in-situ determination of the nature, degree, and extent of contamination. The information gathered as a result of this effort will provide vital information for the subsequent disposal and recycling of the fill material. Where contaminated soil (i.e. 21E regulated soil) is encountered, it will be disposed of during construction under a Bill of Lading. The execution of the pre-characterization program and management of soils will be under the supervision of a Licensed Site Professional (LSP) in accordance with the Massachusetts Contingency Plan (MCP). GZA is currently preparing the "pre-characterization" program. Following field explorations and laboratory testing, GZA will prepare construction contract documents setting forth required criteria for excavation and disposal of soils and pumped groundwater, if any. Although the schedule for performing this work is largely dependent on the overall project schedule, the study is anticipated to require on the order of 3 months to prepare following notice to proceed on the "pre-characterization" program. An updated Environmental

Completion Report will be prepared for DEP following completion of subsurface construction. The report will include chemical testing results, a risk assessment, and proposed additional remedial measures to mitigate contamination remaining at the site, if any are required.

4.7.3 Asbestos

Based on information received from Sears, the Project proponent understands that the majority of asbestos-containing materials present in the main Sears building was removed or otherwise abated by Covino Environmental Consultants, Inc. in anticipation of the Olmsted Plaza Project. The proponent will conduct a thorough review of existing documentation related to the continuing presence of any asbestos-containing materials in the building, including an updated asbestos survey, if necessary. To the extent any asbestos-containing materials remain in the building and are required to be removed as part of the renovation or demolition process, such materials will be removed by the proponent in accordance with all applicable law.

4.7.4 Operational Solid Waste

Upon completion of construction, the operational solid waste generated by the proposed Fenway Plaza project will be as a result of new retail space. The estimated operational waste is based on current rates of waste generation at other similar size retail shopping centers and assuming similar rates for Fenway Plaza.

The solid waste generated by the operation of the proposed Fenway Plaza project will be removed and disposed of by private independent contractors. Such disposal will be performed utilizing standard procedures and in accordance with all applicable laws. Fenway Plaza is also considering recycling to supplement their waste disposal operations.

The existing buildings on the site have been vacant in recent years so there is no operational solid waste currently being generated on the site, although when operating, the existing Sears Building generated waste as a catalog distribution center. The solid waste to have been produced by the former Olmsted Plaza project was estimated at 2,080 to 2,325 tons per year. Table 4.7-1 indicates, by use, the estimated solid waste to have been generated by the previously proposed project as well as Fenway Plaza. The table shows the Olmsted Plaza project with two office buildings in addition to the existing Sears Building. The Fenway Plaza project is shown with new retail space only in addition to the existing Sears Building. As previously discussed, the existing Sears Building will be converted to a parking garage. The Olmsted Plaza project, primarily a medical laboratory and research facility, would have generated substantial amounts of hazardous waste in its normal operations, including toxic chemicals, biological materials, radioactive materials and animal waste. As no such facilities are being proposed for the proposed retail Project, the Project will have significantly less impact on the use, storage and disposal of hazardous materials than Olmsted Plaza.

Summary

The normal operational solid waste to be generated by the proposed Fenway Plaza project is estimated at approximately 1,300 tons per year compared to over 2,300 tons per year estimated in the former Olmsted Plaza DPIR/DEIR for that project. This represents a reduction in operational solid waste of 1,000 tons per year by the proposed Fenway Plaza project.

TABLE 4.7-1
ESTIMATED SOLID WASTE GENERATION
OLMSTED PLAZA VS. FENWAY PLAZA

1. **Olmsted Plaza With Additional Two Office Buildings**

Use	GSF	Estimated Annual Generation Rate Tons/1,000 SF/Year	Estimated Solid Wastes Tons/Years
Office	1,496,120	1.33	1,990
Retail	60,880	5.5	335
TOTAL			**2,325**

2. **Fenway Plaza - Retail Space**

Use	GSF	Estimated Annual Generation Rate Tons/1,000 SF/Year	Estimated Solid Wastes Tons/Years
Retail- TOTAL	450,000	2.88	**1,300**

4.8 Noise

4.8.1 Introduction

The Olmsted Plaza DPIR/DEIR included a thorough analysis of existing ambient sound levels, city and state noise regulations and traffic noise. Excerpts from the DPIR/FEIR are included as Appendix 4.8.

The BRA Scoping Determination required an analysis on anticipated long-term noise impact from Project from the following potential sources: (i) Project-generated traffic, (ii) the operation of the open parking garage, and (iii) the Project's outdoor mechanical equipment.

4.8.2 Existing Conditions

The existing acoustical environment in the project area was fully described in the DPIR/DEIR and is included in Appendix 4.8. Based on the information contained in the transportation analysis in this SPIR/NPC indicating that existing traffic volumes are substantially the same as those at the time of the Olmsted Plaza Report and the fact that there have been no new major sources of noise in the immediate vicinity in the Site which have become operational since the time of the DPIR/DEIR, existing conditions are assumed to be the same as those reported in the DPIR/DEIR.

4.8.3 Transportation Noise

Traffic noise is not regulated by state or local government. In response to the BRA Scoping Determination, however, a basic review of traffic noises is included in order to quantify the expected increase in sound levels on an annual average basis. As was discussed with the Olmsted Plaza project, analysis of impacts of traffic on noise levels assumes that changes in noise levels will correlate roughly with changes in traffic volumes and that noise levels during the peak hour will reflect traffic generated during such peak hour. This is standard methodology for traffic noise prediction. As was the case with the Olmsted Plaza project, for the purposes of this analysis, the impacts of traffic noise over existing conditions were studies for both the no-build condition and the build condition. Table 4.8-1 shows the predicted peak hour traffic volume for three key road segments (Park Drive by the Site, Park

Drive at the MBTA Bridge and Brookline Avenue, south of the Site) together with the calculated differences in sound levels between no-build conditions and build conditions. As shown on table 1, none of the sound level difference values exceeded one decibel, which is the smallest difference perceptible to humans. Based on this analysis, as was the case with the Olmsted Plaza project, no noise impacts from project-related traffic are anticipated.

4.8.4 Parking Structure

Because the parking structure will be used by passenger vehicles which will be moving in and around the structure at very low speeds, it is anticipated that there will be virtually no noise impacts as a result of the operation of the parking structure. During normal operations, no perceptible sound is anticipated at the surrounding residential areas. The only temporary noise that may be generated by the open parking structure will be the occasional car with a broken muffler, honking of horns and tire squeaks. However, these types of noises are likely to be shielded to a great extent from residential neighborhoods by the parking structure. These sounds are normal in any urban neighborhood.

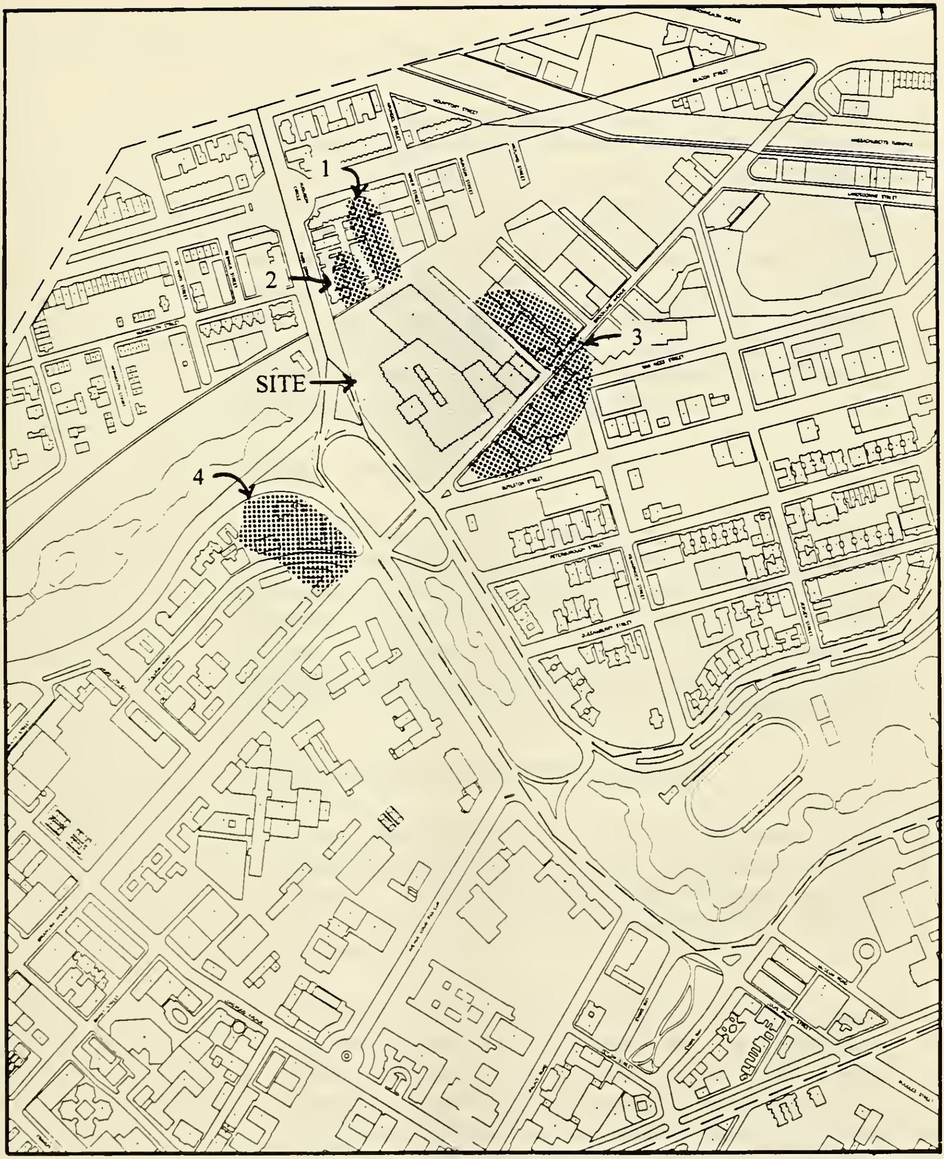
4.8.5 Noise Regulations

The DPIR/DEIR included a thorough discussion of state and city noise regulations, which is included in Appendix 4.8. These regulations are still applicable as of this date. As was noted in the Olmsted Plaza Report it is anticipated that compliance with the Massachusetts DEP standards is virtually assured because of the high levels of ambient noise that already exists in the area. Accordingly, the design criteria for the Project will be based on the city regulations.

The air pollution Control Commission's "Regulations for the Control of Noise in the City of Boston" includes the following maximum nighttime sound levels:

1. Residential properties from Aberdeen Street south to Brookline Town limit - 50 dBA.
2. Properties to the west of the Site (mixed residential and commercial zone) - 55 dBA.
3. Brookline Avenue, Fullerton Street (commercial) - 65 dBA.
4. Residential properties south of the site - 50 dBA.

These areas are also shown on Figure 4.8-1.



AREA LOCATIONS FOR MAXIMUM NIGHTTIME NOISE LEVELS
(Refer to Section 4.8.5 - Noise Regulations)

Figure 4.8-1

4.8.6 Truck Activity Noise

As shown on Figure 4.8-2, truck deliveries and loading dock operations will occur on the north side of the building. Therefore truck loading operations will be shielded from the residential properties to the west by the new three story retail structure. Residential properties to the south will be shielded by the eight story existing main building which will be converted into a parking structure. Therefore, it is anticipated that there will be no adverse noise impacts from truck loading operations on residential neighborhoods in the vicinity of the Site and in fact these are improvements to that encountered in previous Sears operations where loading occurred on north, south and west.

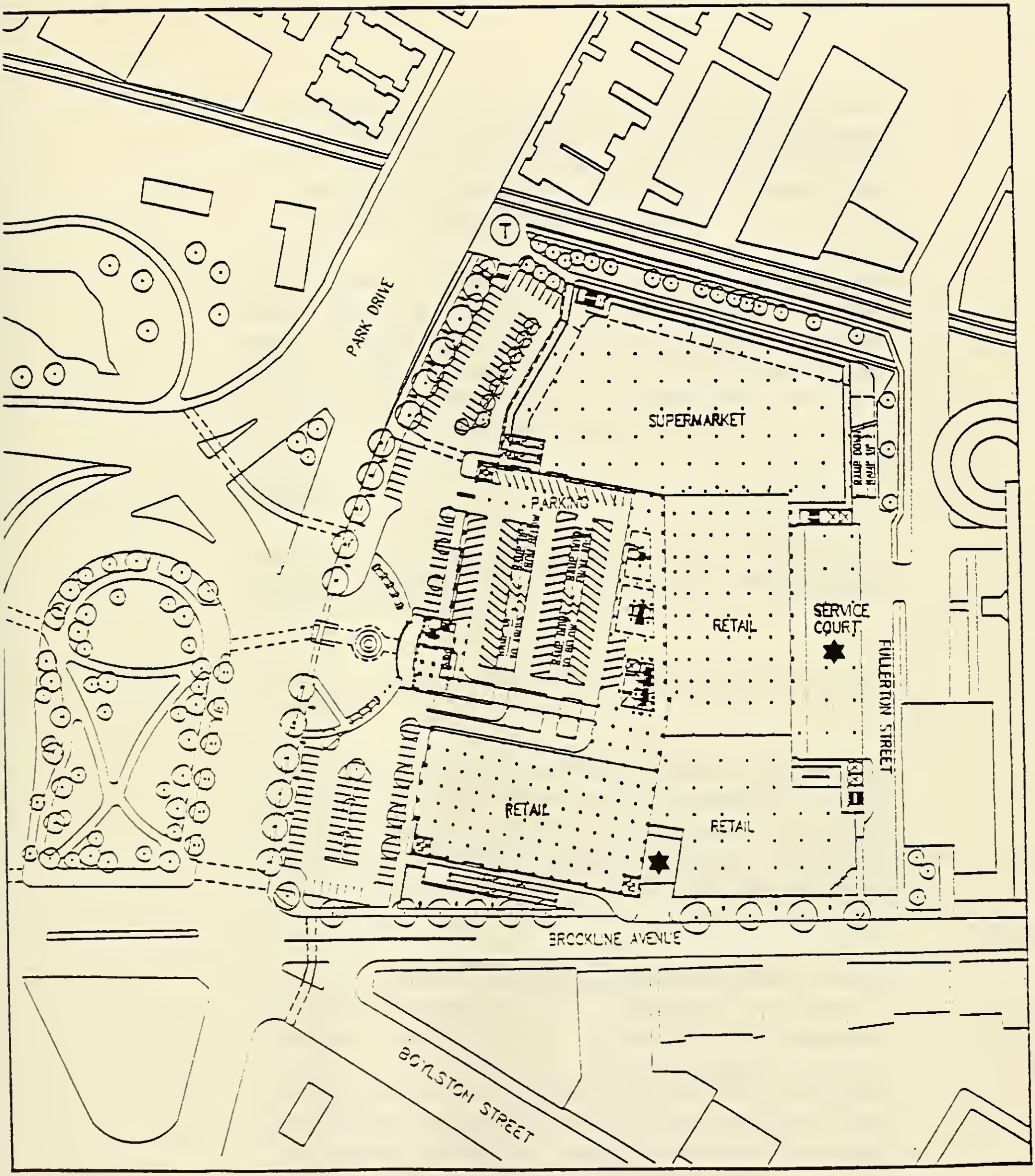
4.8.7 Outdoor Mechanical Equipment

As was the case with the Olmsted Plaza, the most significant source of operational noise will be the mechanical equipment to be situated on the roof of the Project's structures. Most of this mechanical equipment will be on the roof of the new retail building. Therefore, the main Sears building, which is considerably higher than the proposed new building, will provide a significant noise barrier for all the areas to the south of the project.

The rooftop equipment falls into three categories:

1. Three garage exhaust fans of 30 horse power each. These units are specified with discharge sound attenuators. The predicted sound level at the nearest residential property from these units is 38 dBA, well below the 50 dBA nighttime limit.

2. Approximately 40 package HVAC units with fifty tons cooling capacity each, distributed over the roof of the new retail building. As a worst case scenario, at the nearest residential property (located approximately 150 feet to the west), the collective noise impacts from these units will be 60 dBA. This estimate does not include any mitigation which would be achieved by placing a parapet at the edge of the roof. Such a parapet or other sound barrier would reduce sound levels at or below the 50 dBA nighttime limit for properties to the west.



Site Plan and Level 1 Plan
Showing Location of Truck Courts
Figure 4.8-2

★ Truck Courts

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3. Refrigeration unit for supermarket cooling, based on typical machinery for a supermarket such as the one contemplated for the project would produce a sound level of 56 dBA if set 50 feet from the west edge of the roof. Additional noise mitigation will be provided if necessary.

The combined total sound emissions at the nearest residential property from items 1, 2 and 3 above is estimated to be 61 dBA without mitigation and to be 50 dBA with mitigation. If final Project design necessitates a parapet on the western facade of the new building it will be included. The parapet height and length will be determined during a later design phase.

4.8.8 Summary

Based on a detailed review of the proposed plans for the Project, schematic mechanical plans and traffic counts, the following conclusions are reached:

- No noise impacts from traffic noise of the parking structure are anticipated.
- Truck activity noise will not affect residential neighborhoods because of the location of the proposed loading docks on the north side of the property. From a noise perspective, this is the best possible location for truck docks, because the buildings provide a substantial sound barrier from the residential properties.
- Noise from roof top mechanical equipment may slightly exceed the limits for nearby residential neighborhoods to the west; if necessary, these levels will be controlled by appropriate measures. Noise from the mechanical equipment will not exceed limits for the residential neighborhoods to the south because of the shielding of both the new retail structure and the taller existing main building. Operational noise will not exceed the limits for the commercial properties to the north.

TABLE 4.8-1

FENWAY PLAZA PROJECT

TRAFFIC NOISE ANALYSIS

APRIL 1994

					Noise Level Change	
Road Segment	Existing Volume* (Peak Hour)	Future No Build ('99) Volume* (Peak Hour)	Noise Level Change Over Existing	Future Build ('99) Volume* (Peak Hour)	Over Existing	Over No Build
Park Drive at Site	1,910	2,118	+ .4 dBA	2,396	+ 1 dBA	+ .5 dBA
Park Drive at MBTA Bridge	1,420	1,573	+ .4 dBA	1,804	+ 1 dBA	+ .6 dBA
Brookline Avenue, South of Site	1,495	1,688	+ .5 dBA	1,773	+ .7 dBA	+ .2 dBA

* Traffic data from Abend Associates.

4.9 Construction Impacts

4.9.1 Construction Impact Schedule

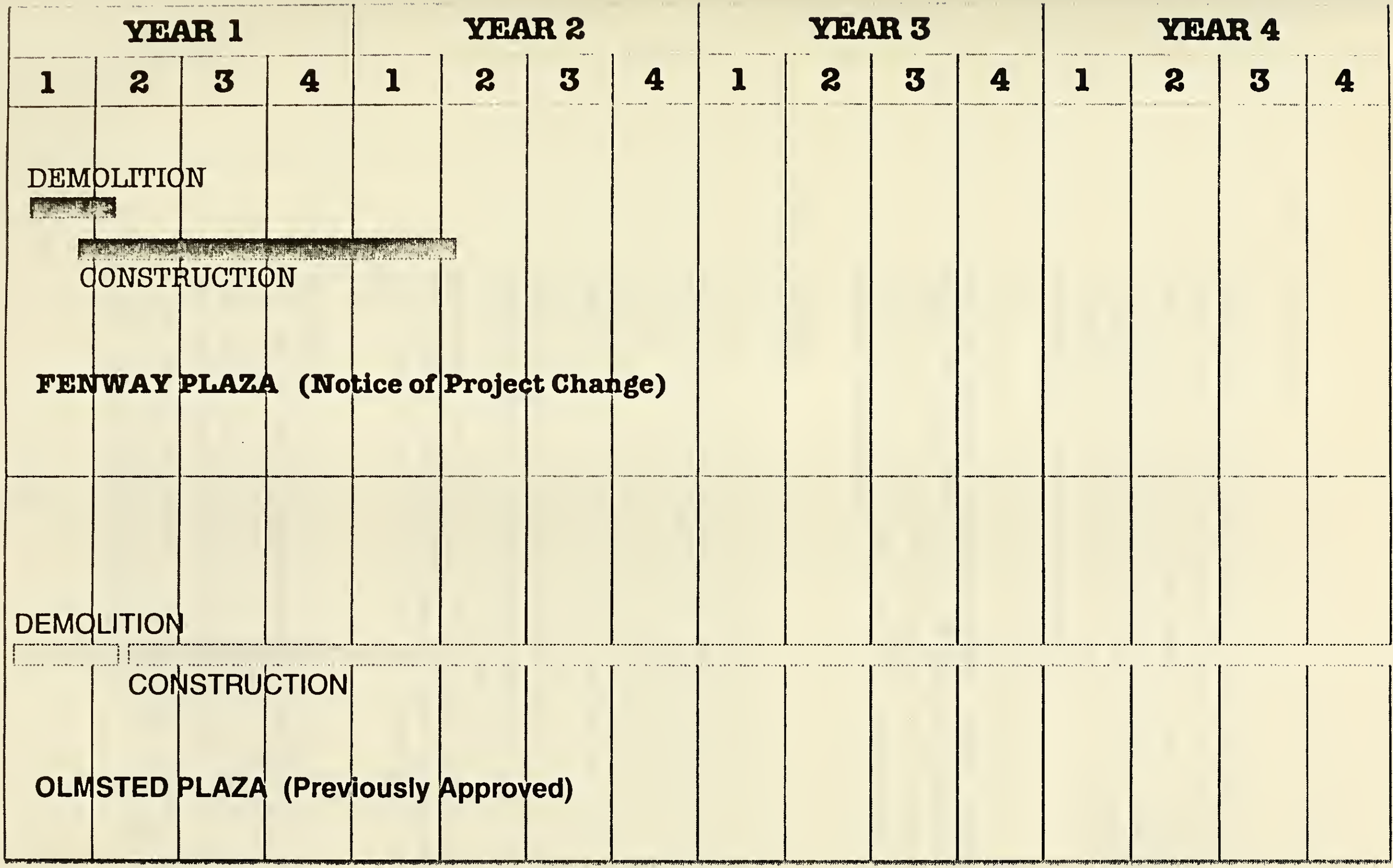
The construction period for the proposal Fenway Plaza project is expected to last approximately fourteen months starting August 20, 1994. Typically, construction hours for the project will be 7:00 a.m. to 3:30 p.m., Monday through Friday and occasionally on Saturday. The preliminary construction schedule is shown in Figure 4.9-1. As shown on the schedule, there is overlap between some construction sequences.

Initially, demolition will occur during the first three months of the work. Site preparation would overlap during this phase, with completion due at the end of the fourth month. Prior to completion of these basic tasks, work will begin on the new retail area and the interior of the garage structure. Construction of the retail area will continue to the end of the construction project but the garage will be completed about two months earlier.

Each stage of construction will have only minor traffic impacts on the area roadway network because most work faces will be approached from on-site. These impacts include construction worker traffic and truck traffic. Truck traffic to the site consists of materials deliveries and construction debris removal from the site. The construction worker traffic and truck traffic impacts are outlined in the traffic section of the transportation component of this report. Construction impacts will be minimal during peak hours traffic since the majority of this traffic occurs during off-peak hours in the middle part of the day.

4.9.2 Construction Staging Areas

Staging areas will be located to ensure safe and efficient construction with a minimum of disruption to existing businesses, pedestrians and automobile traffic in the surrounding area. In determining scheduling, truck routes, and staging locations for the project, particular attention will be given to ensure the protection of Park Drive and Brookline Avenue and their pedestrian nature. The pedestrian routes along Park Drive and Brookline Avenue will be open throughout construction. Any staging or construction operations that infringe on public ways will be cleared with the city. However, most if not all staging areas will be located on-site.



Similar to Olmsted Plaza EIR fig. 4.9-1

FIGURE 4.9-1

CONSTRUCTION IMPACTS
COMPARISON
FENWAY PLAZA-OLMSTED PLAZA

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4.9.3 Public Safety

Police Officer traffic control will be used as necessary as a public safety provision during the proposed construction of Fenway Plaza. The need for police officers will be determined jointly with the Boston Transportation Department and provided as required. Detail officers on assignment in construction zones will be responsible for maintaining a safe and orderly flow of vehicles and pedestrians as well as responding to other events as necessary.

Access to the construction area will be limited by perimeter controls, such as temporary construction fencing. Easily understandable signage will be provided to ensure safe pedestrian routing around and through the site. In the Traffic Maintenance Plan in compliance with the City's Construction Management Plan to be approved prior to the initiation of construction.

4.9.4 Demolition

The partial demolition of the warehouse additions will be the first stage of construction and will take approximately three months. During the demolition phase, the Sears site will be closed to the public for safety reasons. The sidewalk immediately adjacent to the site leading to the HCHP building along the MBTA tracks will be protected during the demolition of the northwestern section of the warehouse. This should only be necessary for one-to-two weeks. There will also be sidewalk protection and possible pedestrian rerouting on Brookline Avenue during the demolition of the warehouse on the corner of Fullerton Street and Brookline Avenue. This will last approximately seven-to-ten days. Debris removal will be by truck and is not expected to disrupt traffic except on Fullerton Street, a dead-end street. Noise impacts associated with the demolition are discussed below.

Approximately fifteen trucks of demolition debris will be removed daily from the Fenway Plaza site during the demolition phase. Each truck holds twenty cubic yards of debris totaling approximately 300 cubic yards per day. Demolition is expected to continue for about three months. State-of-the-art demolition techniques will be followed at the Fenway Plaza project. The existing structures will be mechanically dissembled. The exact techniques and methodology, however, are still being developed at this time.

The disposal options for demolition debris depend upon the materials to be disposed of and the current regulatory constraints. Any contaminated waste will be managed and disposed of by a licensed contractor in an approved landfill in accordance with all applicable State an local regulations. The bulk of construction debris will consist of non-contaminated steel, concrete, and brick. A portion of the steel may be salvaged, and all of it will be removed by the contractor. Concrete and brick waste will be disposed of in an approved landfill under the authority of the contractor. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring. The naming of specific sites for disposal is premature at this time since conditions and available disposal sites may change by the time construction begins. The demolition contractor will, however, assume full responsibility for disposing the debris legally, efficiently and appropriately.

4.9.5 Construction Air Quality Impacts

Project-related air quality impacts are anticipated to be limited to emissions of fugitive dust during the demolition phase and the operation of on-site equipment. Pollution generated from construction-related traffic and construction machinery should be minor and not result in any unusual or serious impact to air quality. Impacts associated with demolition land clearing, ground excavation, and other construction activities may generate fugitive dust, which will result in localized increases in airborne particulate levels. Fugitive dust emissions from construction activities will depend on such factors as the properties of the emitting surfaces (e.g., soil silt content, moisture content, and volume of spoils), meteorological variables, and construction practices employed.

Mitigation

To reduce emissions of fugitive dust and minimize impacts on the local environment, a number of strictly enforced mitigation measures will be implemented. These include:

- The use of wetting agents on areas of exposed soil and demolition activities on a schedule basis.

- Use of covered trucks for transportation of excavated materials and demolition debris.

- Use of covered trucks for transportation of excavated materials and demolition debris.

- Minimizing storage of debris on-site.

- Locating aggregate storage piles away from areas having greatest pedestrian activity.

- Monitoring of actual construction practices to avoid unnecessary transfers and mechanical disturbances of loose accumulations.

4.9.6 Construction Noise Impacts

Construction activities will result in the creation of temporary noise and vibration impacts, as a result of the operation of construction equipment on-site and traffic to and from the construction site. Noise from steel erection will be primarily limited to the new retail addition. Actual noise levels will depend on such factors as the location of the work and the choice of equipment used. Noise generated by construction truck traffic will be temporary and variable in nature. To a large extent, this noise will be masked by already high ambient noise levels. Noise levels in the project area will, however, increase during construction of Fenway Plaza. However, these noises will not be continuous through the construction period. Persons walking by the site while equipment is operating will experience the highest noise levels. This temporary noise exposure will only last for the brief period of the time required for a person to walk past the site and only when such equipment is operating. The impacts will abate quickly as they walk away from the site. Persons inside nearby buildings should not be significantly affected by construction activities.

The Olmsted Plaza PIR/EIR contained an elaborate analysis of construction noise impacts, particularly as they relate to the city's noise regulations for construction activity. The new project involves much less construction both in terms of area and height. The currently proposed building is only three stories high and is being built on that part of the site that has potentially less impact on much of the area. While peak noise levels may be the same, the time period when noise is emitted will be much shorter and will emanate from locations on the site that should produce less off-site noise than previously identified in the PIR/EIR.

Mitigation

There are a number of measures which will be taken to mitigate noise at the Fenway Plaza construction site, including:

- Use of appropriate mufflers on all equipment.
- Installing enclosures around the work area where stationary equipment is being used.
- Replacing specific construction operations and techniques by less noisy ones, e.g., using welding instead of riveting and mixing concrete off-site instead of in-site.
- Scheduling equipment operations to keep average levels low, to synchronize noisiest operations with time of highest ambient levels, and to maintain relatively uniform noise levels.
- Turning off idling equipment.
- Locating noisy equipment as far as possible from sensitive areas.

Where feasible, construction contract specifications will provide for implementing these measures. With the use of appropriate mitigative measures, a reduction in construction noise levels of 5 to 10 dBA can be achieved over a normal construction noise.

Summary

The Fenway Plaza project will produce much less noise than the Olmsted plaza project for several reasons.

1. The construction period is much shorter, fourteen months vs. sixty months for Olmsted.
2. The buildings are shorter -- three stories vs. nine-to-ten stories -- so that noise emanates from locations much closer to the ground and have less opportunity to spread to more distant locations.
3. Much of the construction area is shielded by the existing Sears building.

5.0 URBAN DESIGN

5.0 URBAN DESIGN COMPONENT

5.1 Introduction

The contextual conditions described in the Olmsted Plaza DPIR/DEIR are identical with the current project, with the addition of further deterioration of the historic landmark structure and increased demand from neighborhood groups for uses that serve the community.

Excerpts from this previously approved report are in included in Appendix 5.0 for reference and were considered in the following analysis. Also, please see aerial photographs Figures 5.1-1, 5.1-2 and 5.1-3 which show the existing site in its context, Figures 5.1-4, 5.1-5, 5.1-6 and 5.1-7 which illustrate the pedestrian's view of the site, and Figure 5.1-8 which outlines the extent of the retail construction on the photograph of existing conditions. The urban design issues related to Fenway Plaza are being reviewed with the BRA based on their Scoping Determination and are described below.

Fenway Plaza's urban design impact diverges dramatically from the previously approved Olmsted Plaza project with reduced building heights and massing, greater setbacks from Park Drive, and use of the landmark to provide public uses and access to the site in contrast to Olmsted Plaza's institutional nature. The following are key issues addressed in the urban design.

- To re-use the historic Sears Roebuck building, repairing existing structure and finishes, and restoring and expanding ground floor openings.

- To repair the original window frames, remove the glazing in windows, install lighting in the perimeter parking areas, restore existing windows in the tower, and screening behind mullions.

- To re-use the existing service vehicle access and curb cuts to the extent possible.

- To provide a totally public use comprised of retail stores with associated parking.

- To provide lit pedestrian walkways through the site connecting the neighborhood, the MBTA and the new uses.

- To enliven the street with new retail along Brookline Avenue and Park Drive.

- To return the "missing link" parcel for the restoration by the City as park land.

- To use materials that complement the historic Sears building.

The project differs from the Olmsted Plaza project as follows:

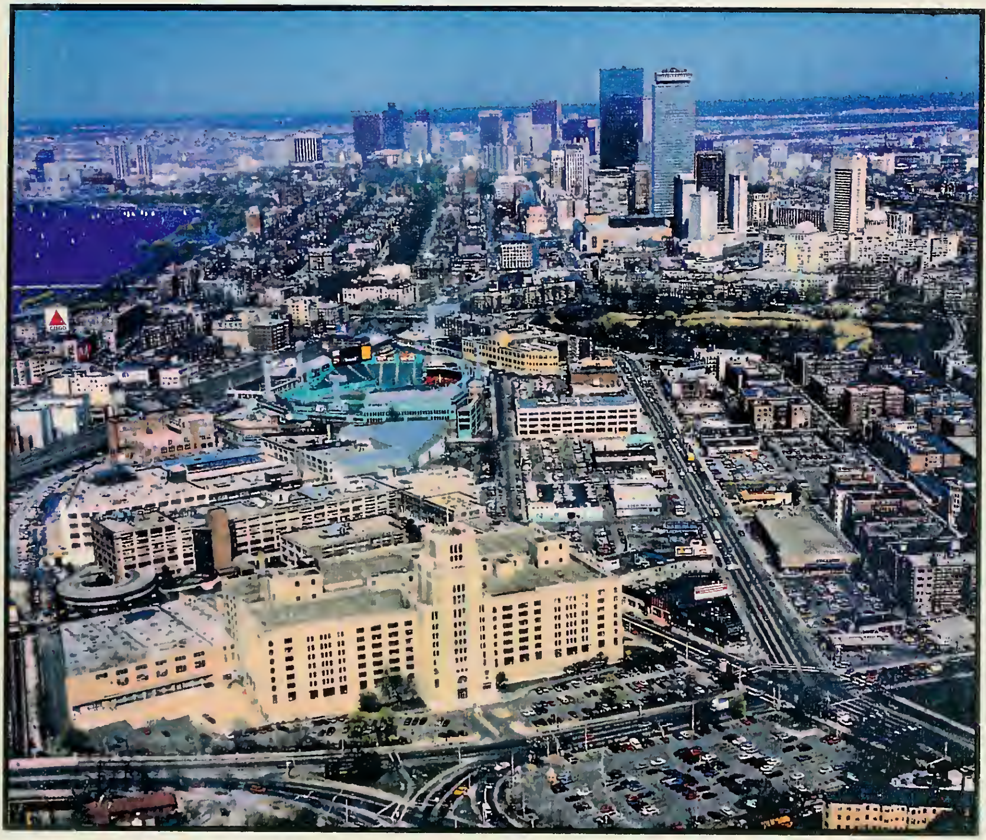
- The proposed retail use is open to the public as opposed to institutional or closed.

- The massing of the new retail facility (relatively low, three stories) more nearly matches the existing commercial and residential building scales within the immediate neighborhood in contrast to the several high rise buildings proposed in Olmsted Plaza.

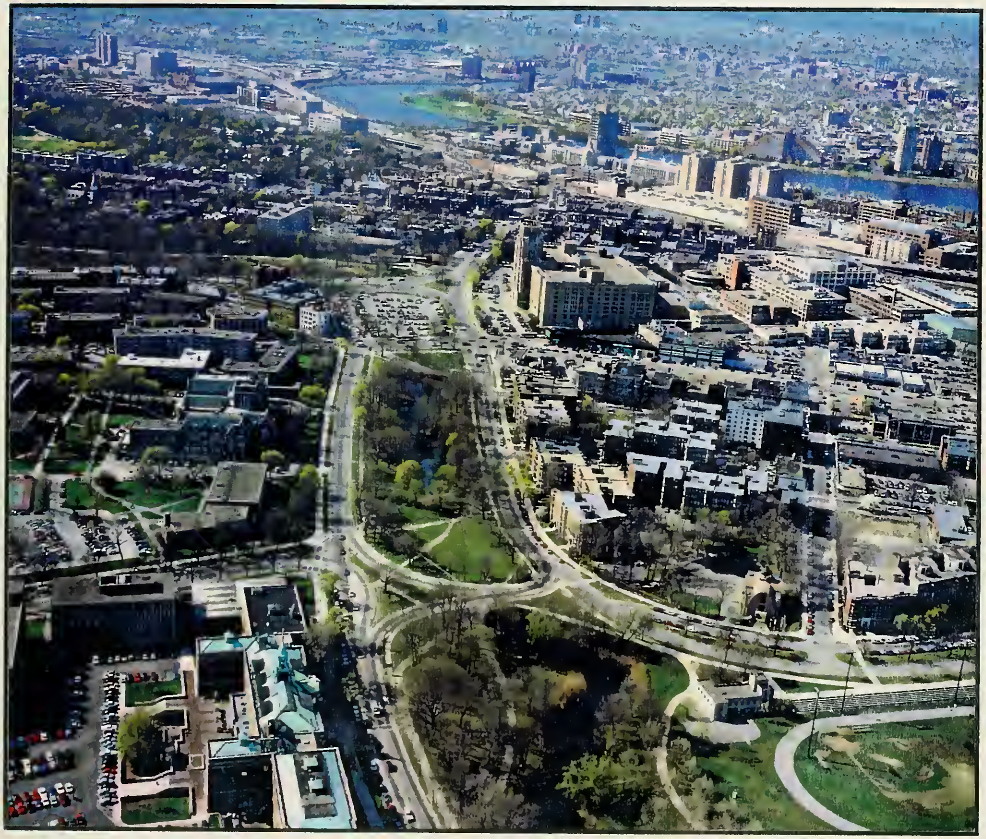
- Views contained in the Olmsted Plaza proposal showed a building that would dwarf its neighbors thereby inhibiting sunlight and sky view.

- The visual prominence of the historic main Sears building will not be compromised by competing adjacent, highrise structures as contained in the Olmsted Plaza project.

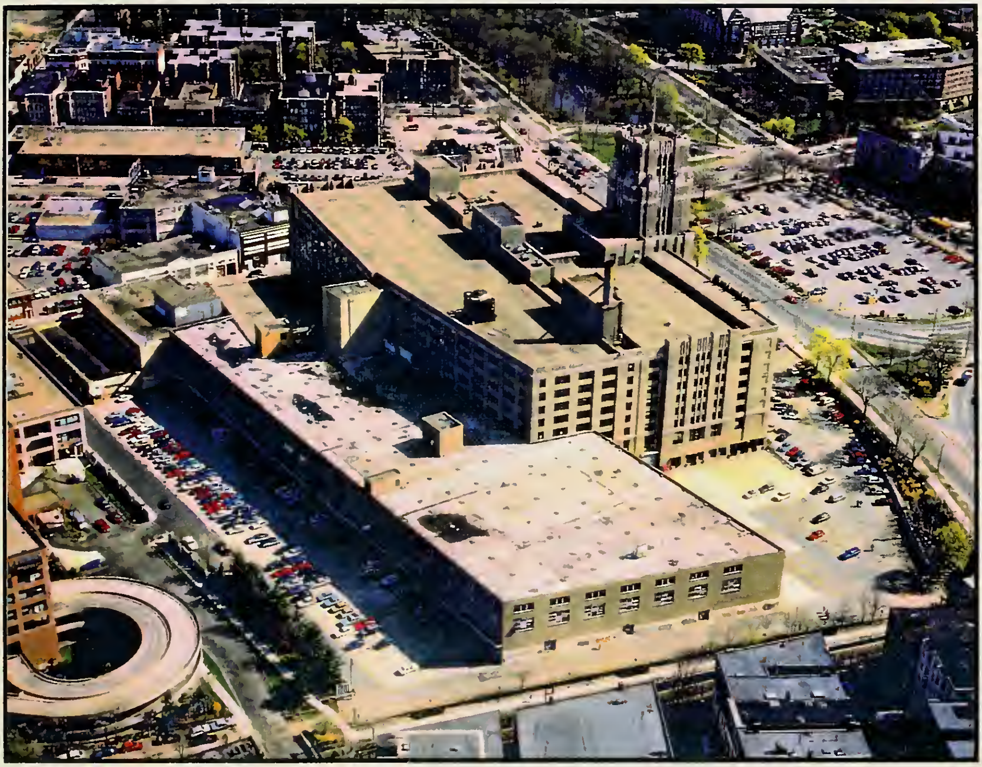
Production of site models and building elevation models will be reviewed and submitted separate from this report. Design Development, Contract Documents, and Construction Inspection Submissions described in the BRA Scope will be provided during the Design Schedule as required.



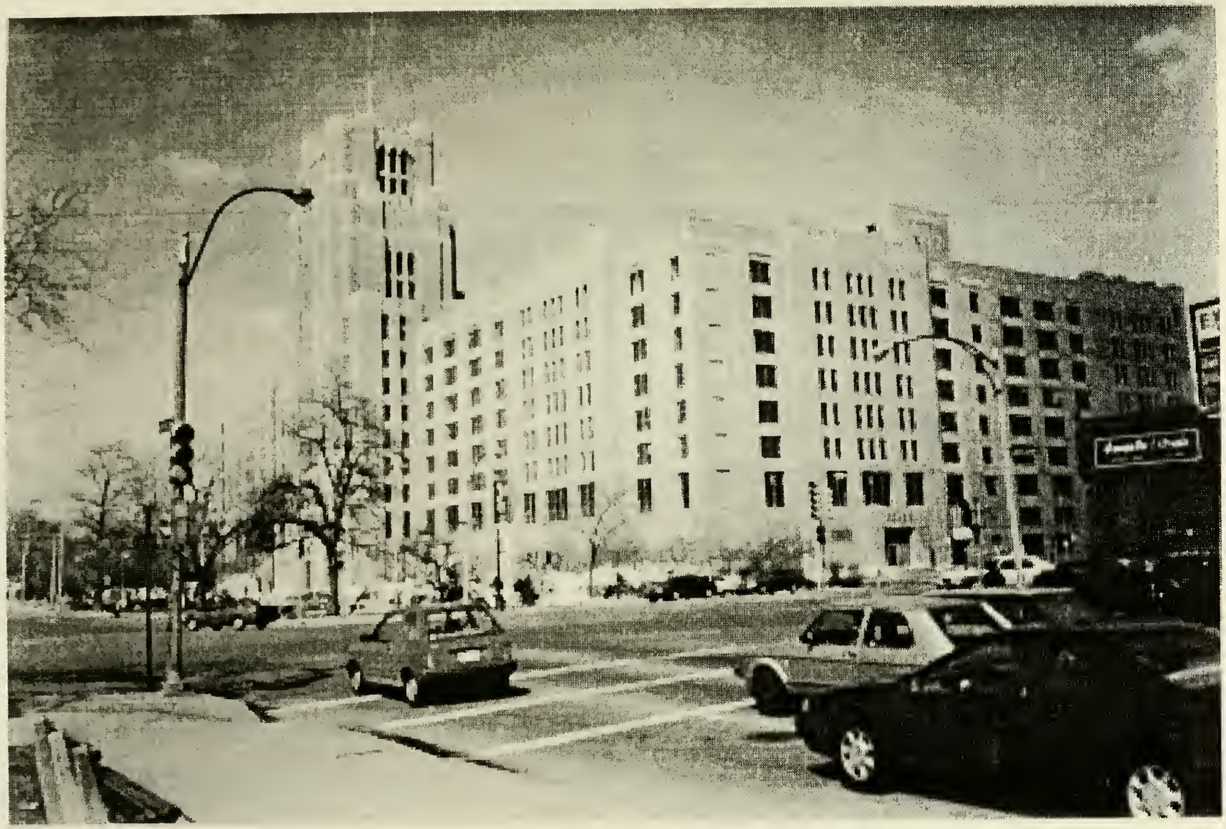
View From West
Figure 5.1-1



View From South
Figure 5.1-2



View From North
Figure 5.1-3



PEDESTRIAN VIEWS
OF PROJECT SITE

FIGURE 5.1-4
VIEW FROM PARK DRIVE

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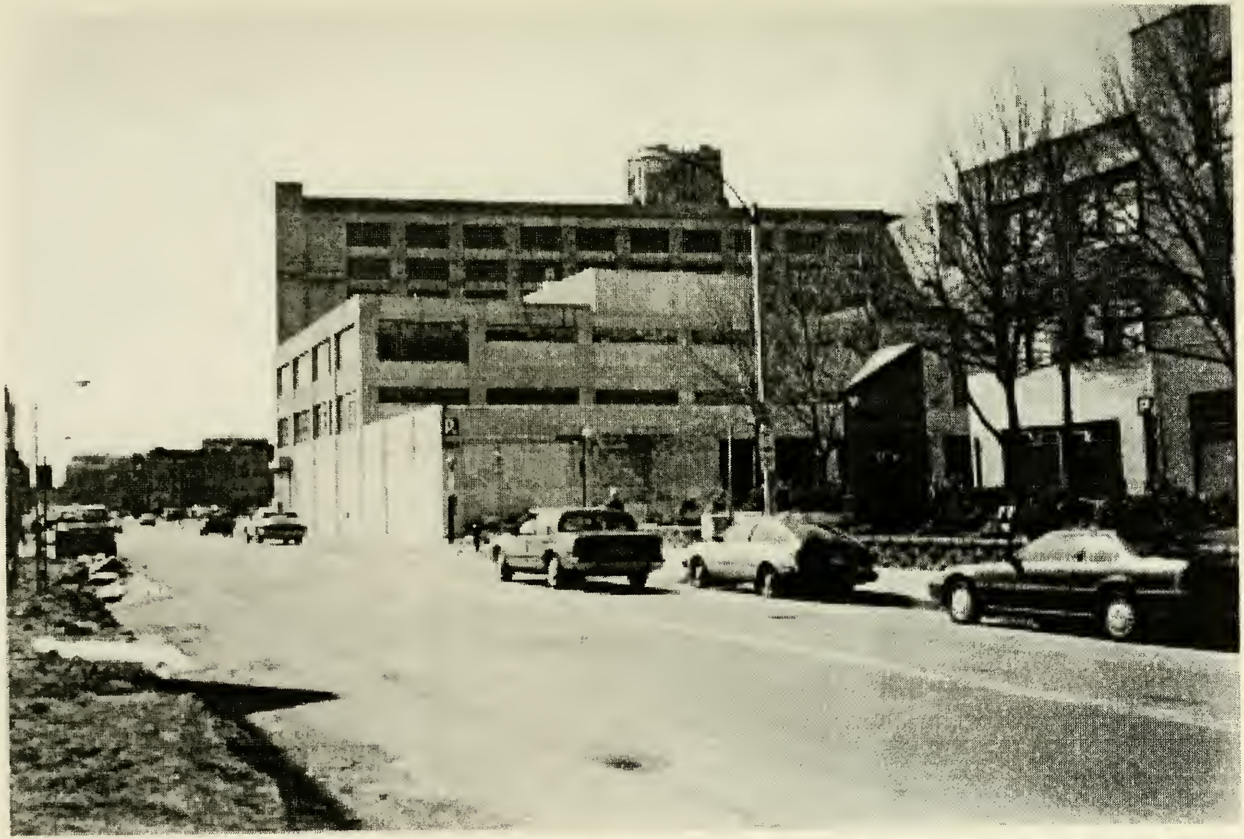

FIGURE 5.1-5
VIEW FROM BROOKLINE AVENUE

PEDESTRIAN VIEWS
OF PROJECT SITE

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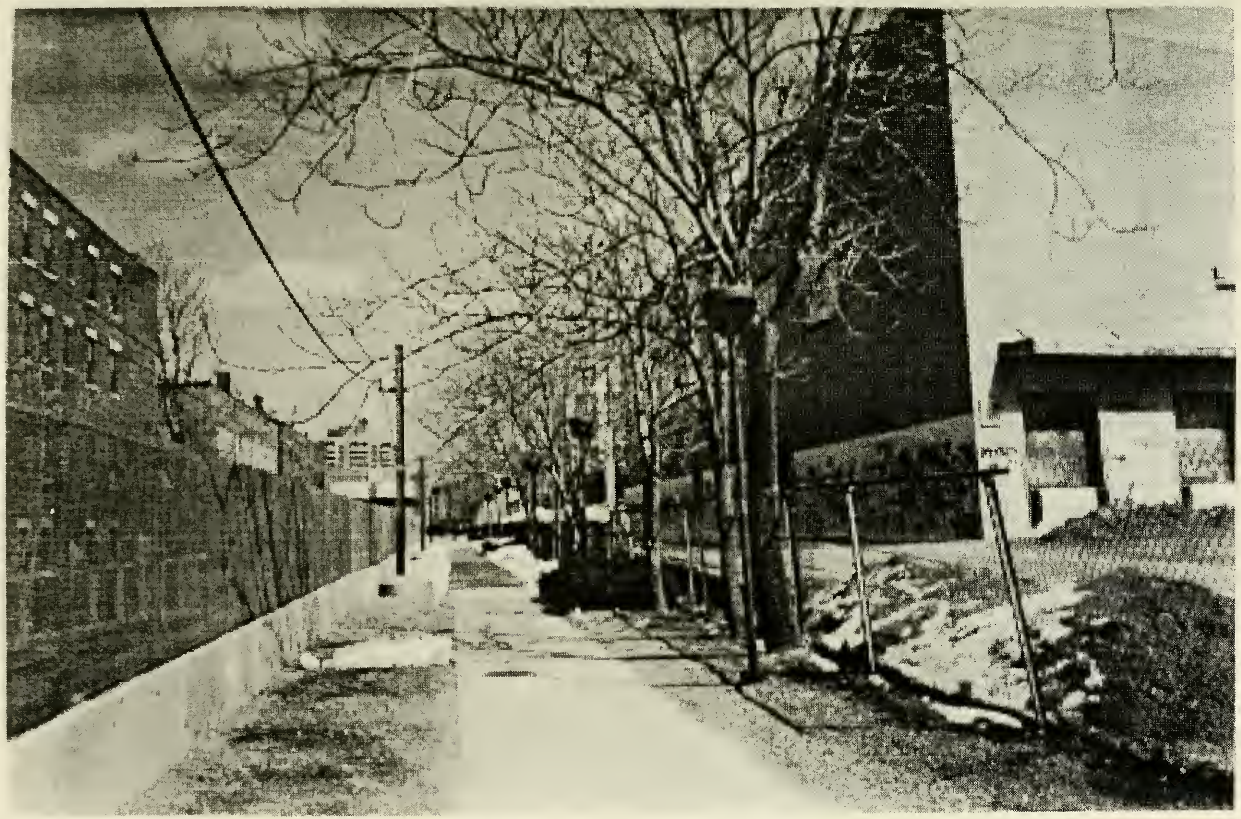

PEDESTRIAN VIEWS
OF PROJECT SITE

FIGURE 5.1-6
VIEW FROM CONRAIL/MBTA

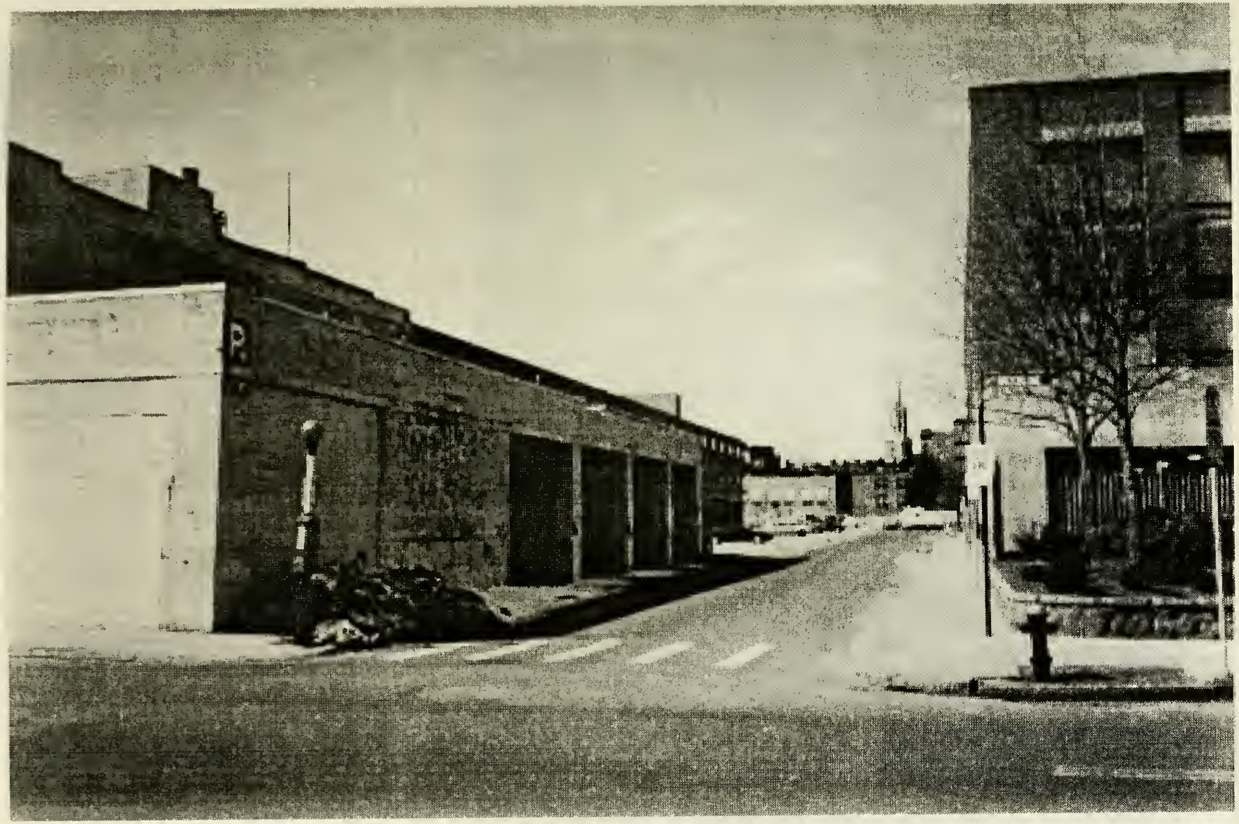

FIGURE 5.1-7
VIEW FROM FULLERTON STREET

PEDESTRIAN VIEWS
OF PROJECT SITE

NEW ENGLAND
DEVELOPMENT

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FENWAY PLAZA

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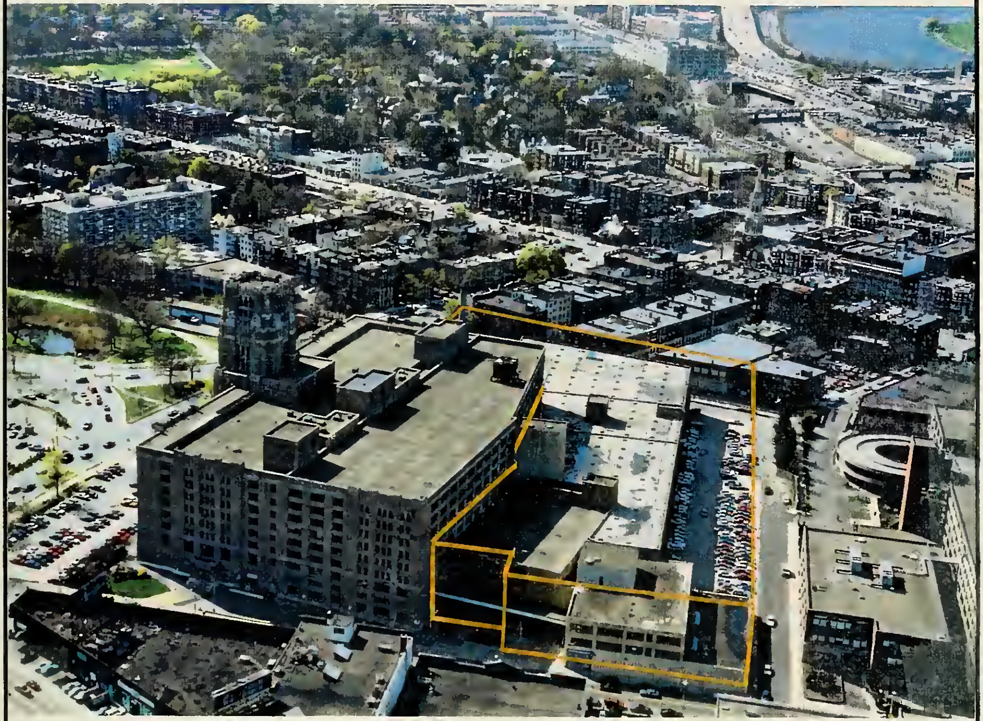


View From Brookline Avenue
With Extent of New Construction Illustrated
Figure 5.1-8

5.2 Project Program

Fenway Plaza's concept for the reuse of the Sears Site is a retail shopping center with associated customer parking. In addition, parking will also be provided on a monthly basis for monthly parking as previously described. This public use of the site, continuation of the historic retail nature of the site and accommodating neighborhood resident's requests for a retail facility contrast with the previously approved Olmsted Plaza medical lab, clinic and office complex. Fenway Plaza also is a fraction of the size of the Olmsted Plaza project, as illustrated in Table 5.2-1.

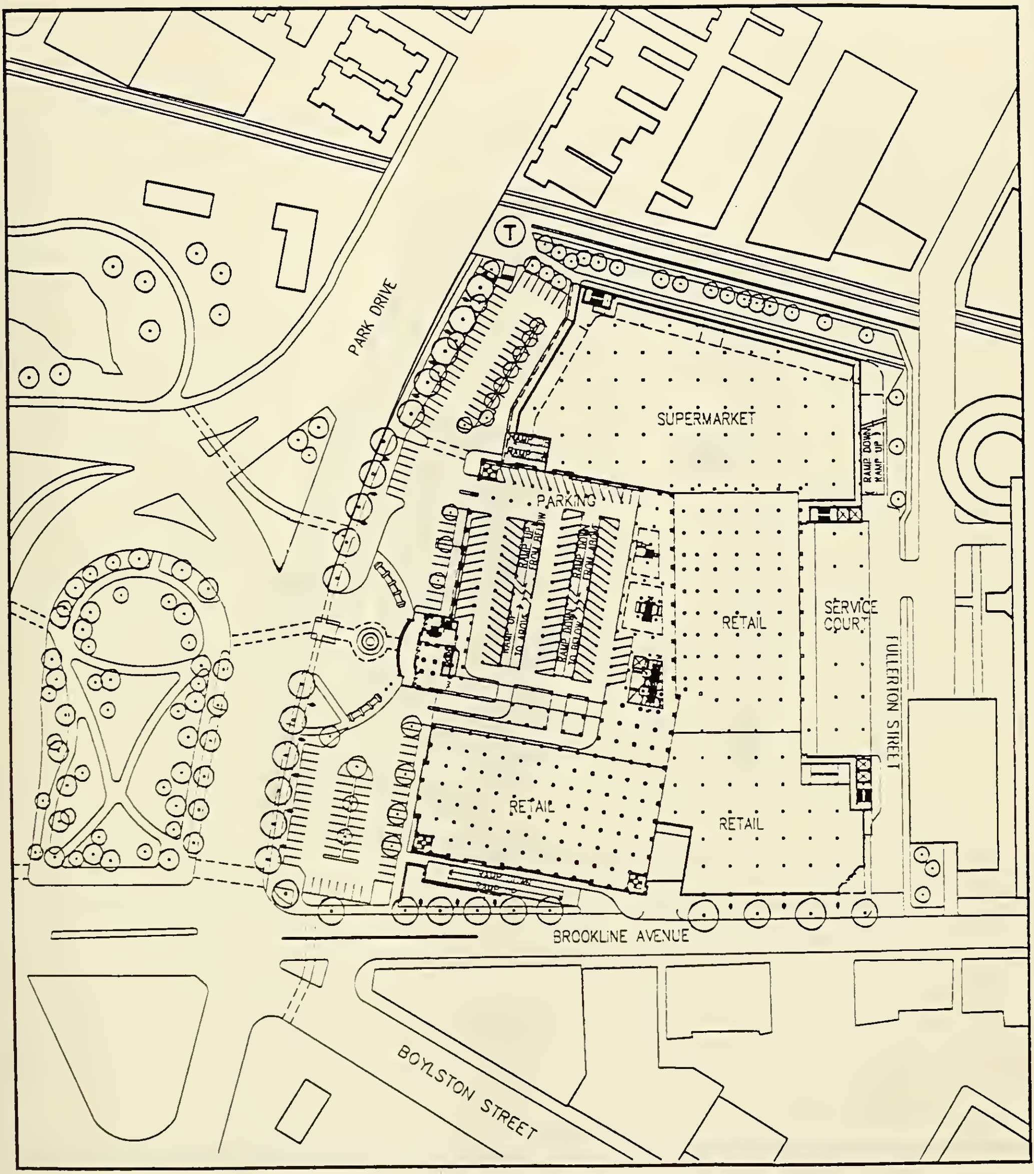
The public nature of the proposed uses, hours of operation and access provided through the site are the greatest urban design vehicle to knit the site into the adjacent neighborhoods, enliven the street experience and enhance the sense of personal security.

As illustrated in Site-Plan Level I Plan and Typical Plan-Second and Third Level (Figures 5.2-1 and 5.2-2), retail uses are proposed on three floors, each of the approximately 150,000 GLA in new and renovated structures. Customer parking is proposed in the lower and adjacent floors of the existing Sears building with monthly parking on top levels.

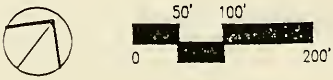
TABLE 5.2-1
FENWAY PLAZA PROGRAM
COMPARISON TO PREVIOUSLY APPROVED OLMSTED PLAZA

	Olmsted Plaza *	**Fenway Plaza**
1. Sears Building (Historic Landmark)	907,000 SF Medical Labs and Clinic Office and Retail	Conversion into open parking structure (with 37,000 SF GLA of retail on first level)
2. New Buildings	Office Buildings (2) 539,000 GSF	Retail Building 413,000 GLA
PROJECT TOTAL AREA	**1,446,000 GSF**	**450,000 GLA**

* Note: This information was found in the Olmsted Plaza FEIR, Table 2-1.



Site Plan and Level 1 Plan
Figure 5.2-1



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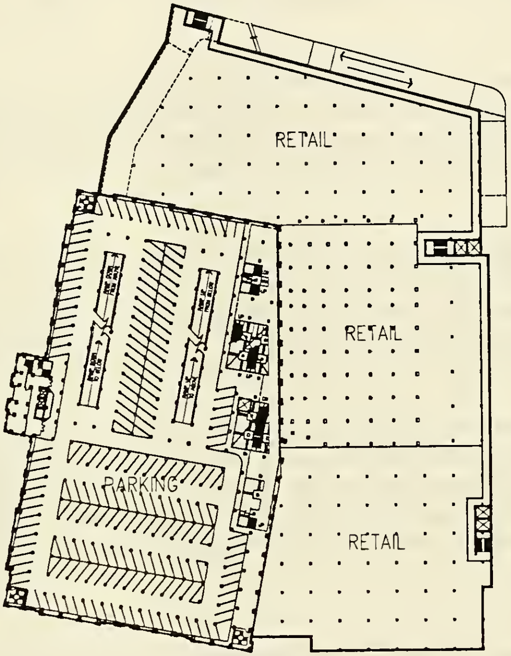


Typical Plans; Levels 2 and 3
Figure 5.2-2

5.3 Site Planning

Fenway Plaza proposes to utilize the urban site in a relatively low rise manner, reusing and consolidating existing service and vehicular access points and reinforcing and encouraging pedestrian routes to and through the site. In addition, it proposes to re-establish itself on the reconnected Emerald Necklace.

The exterior spaces of Fenway Plaza are all public in nature due to the retail nature of the facility in contrast to Olmsted Plaza institutional uses. The stores, parking, and interconnecting spaces (exterior and interior) are all public. Literally, the success of Fenway Plaza is based upon this being achieved.

The key to the urban design of Fenway Plaza exterior spaces is the reconnection of major urban open spaces and networks to and through the project and neighborhoods. The major component of this reconnection is the healing of the city's civic "front yard" - the Emerald Necklace -, that will reconnect the neighborhoods to the site across Park Drive.

In addition, it is understood that the site is urban in nature with its concomitant conflicting needs for pedestrian and vehicular access and movement. The pedestrian patterns to and around the project are designed to be more visible, attractive and public, interweaving landscaping, sidewalks, public transit and auto access into a clear and exciting urban tapestry.

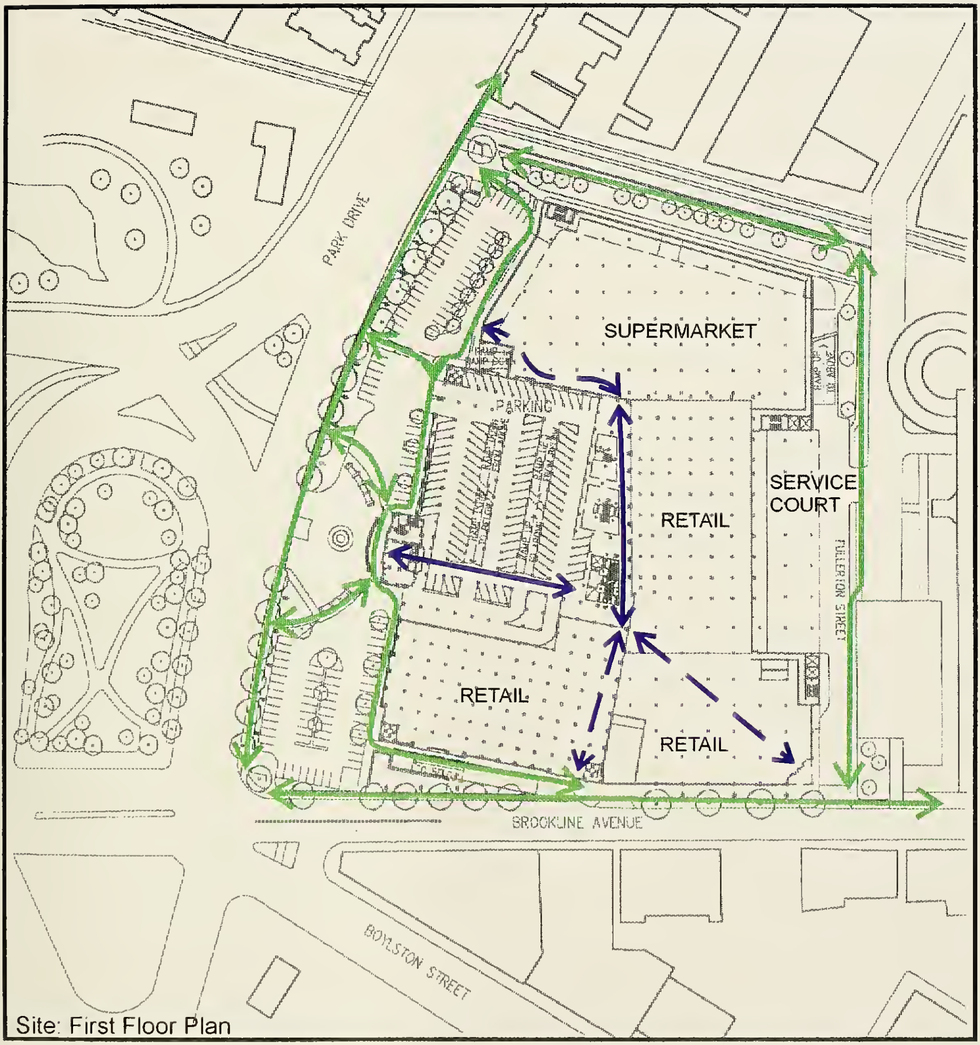
Pedestrian access and circulation will be improved, by reopening the formal tower entrance to the Sears Building, a well-defined access points to interior shopping from Park Drive, allowing public pedestrian travel through the ground floor level along interior walkways. These walkways connect one end of the complex to the other, bringing pedestrians past retail venues. Entry points to the new retail building are located directly off interior public spaces within the building, and probably from Brookline Avenue and Park Drive areas. An improved and more inviting approach to the MBTA Fenway Plaza Station will result from its connection to this circulation system by means of landscaped ramps and steps along Park Drive. Finally, this organization of pedestrian movement will be further enhanced by integrated plantings of trees, shrubs, and flower beds.

Figure 5.3-1 shows pedestrian circulation and access.

Vehicular circulation for retail customers, institutional parkers and retail service are segregated and controlled to maximize the clarity and minimize conflict in the use of the site.

The renovation of the existing Sears building into an open parking structure will be the key factor of this improved circulation pattern. Retail parking will be provided in the basement through fourth level floors, with vehicular access off of Park Drive and Brookline Avenue. Monthly parking will be provided on levels 5 through 8, with access via an entry and exit ramp direct from Fullerton Street to level 5. A modest amount of on-grade parking will be provided, integrated into the landscape at the front court of the Sears Building for quick access to and from the retail/grocery center, and visible activity at the ground level to encourage pedestrian safety.

Service access is accommodated primarily on Fullerton Street in the area of the current loading docks and to a minor degree at an interior space at the present Brookline Avenue service area. Vehicular access is shown in Figure 5.3-2.



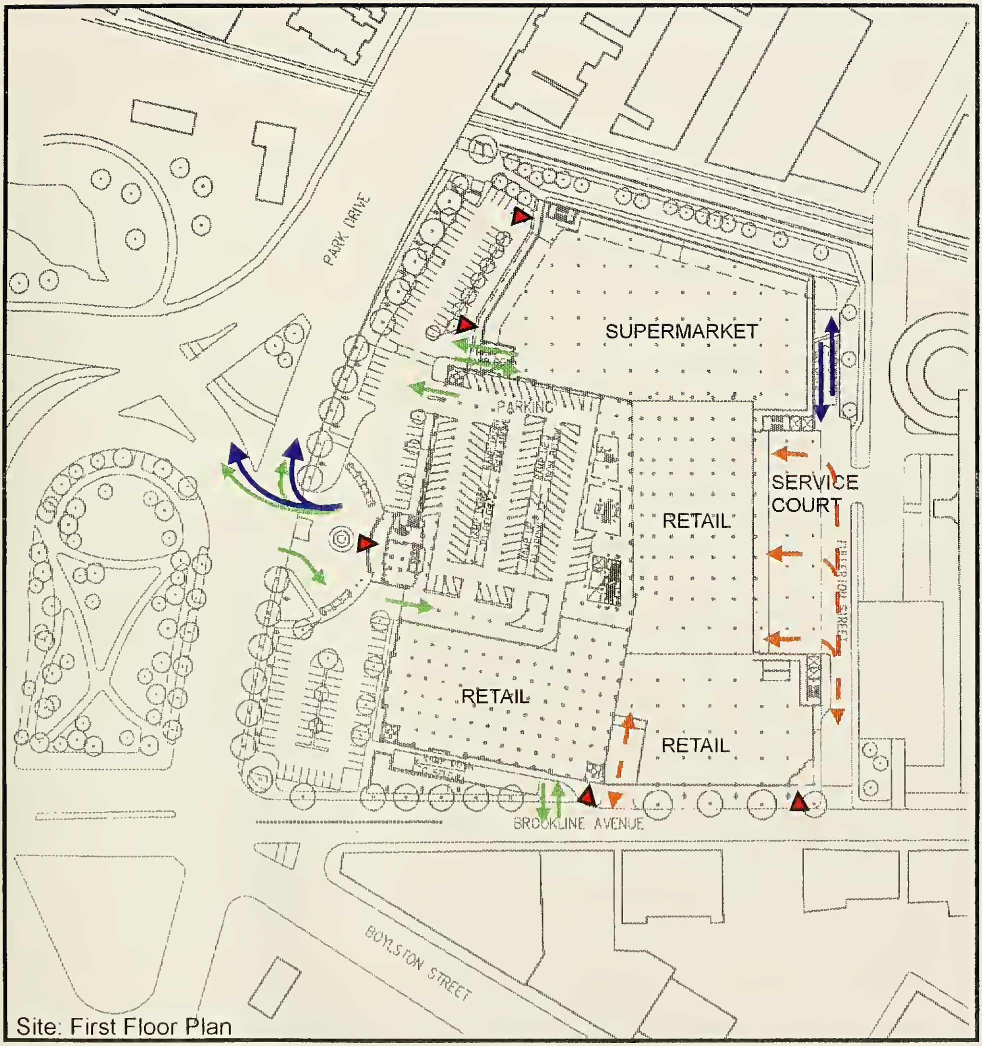
Pedestrian Circulation and Access

Figure 5.3-1

↔ Exterior Circulation

↔ Interior Circulation

← – → Possible Interior Circulation (in retail space)



Site: First Floor Plan

→ Through-Site Traffic (retail)

→ Through-Site Traffic (monthly)

- - → Service Traffic

▲ Drop-Off Point

Vehicular Circulation and Access

Figure 5.3-2

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5.4 Building Design

5.4.0 Design Pallet and Materials

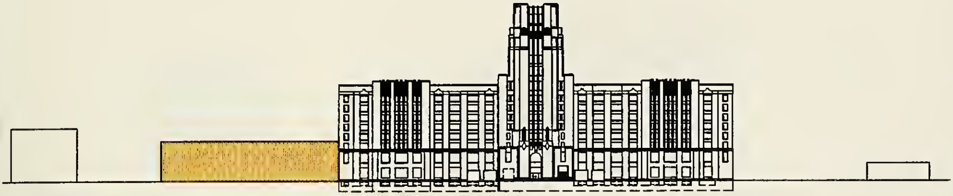
The new structures for Fenway Plaza have been designed to complement the historic Sears Roebuck building. The site plan restores the main building as the centerpiece of the site.

The schematic design approach to the new retail structure uses a pallet of colors and materials which bring the strong masonry and limestone vocabulary of the original building to the new site element. The new retail buildings will be steel framed and clad in combinations of masonry, stone, EIFS, or precast concrete with the lower story members clad in brick and stone. Storefront infill will consist of windows in metal frames expressing a contrasting harmony of texture, color and articulation with the structure of the new retail building, and the original building.

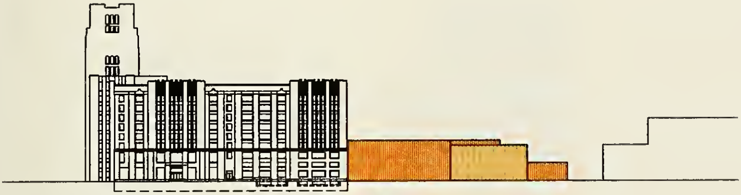
New elements such as canopies, storefront, and windows will be expressed as lighter, metallic accents to the basic structure. These elements combined with the landscape design will be the primary scaling devices which relate the project to its context. This contrasts dramatically with the previously approved Olmsted Plaza where high rise curtain-wall buildings and deep canyons predominated. Materials on the facade of the original Sears building will be restored in materials similar to, if not identical with, the original, and will be done in conformance to Boston Landmarks Commission guidelines. The following are key areas where improvements to the urban design are realized.

5.4.1 Massing and Building Height

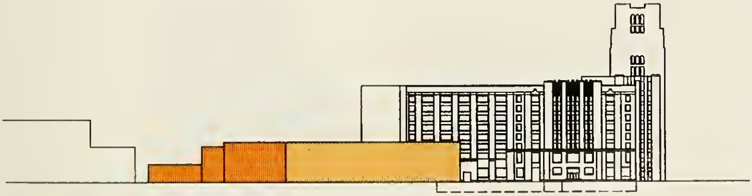
The massing and building heights of Fenway Plaza are complementary and similar to the historic main structure and existing low rise structure. The creation of street edge continuity with the new additions re-asserts the importance of the urban storefront along Brookline Avenue and at the MBTA pedestrian path. This contrasts dramatically from Olmsted Plaza's highrise, multiple building campus approach. The various massing bulk and building heights illustrated in Figures 5.4-1, 5.4-2 and 5.4-3 of the existing conditions, Olmsted Plaza and Fenway Plaza dramatizes the reduced size of Fenway Plaza.



Southwest Elevation



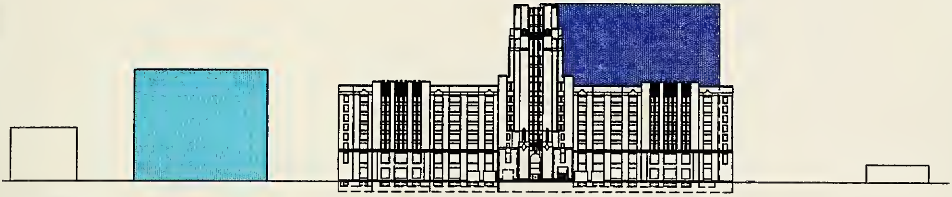
West Elevation



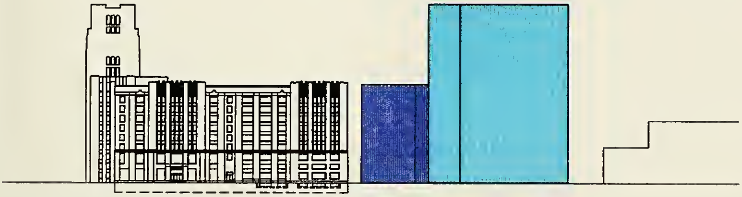
East Elevation

Block Massing Elevations Illustrating Existing Conditions

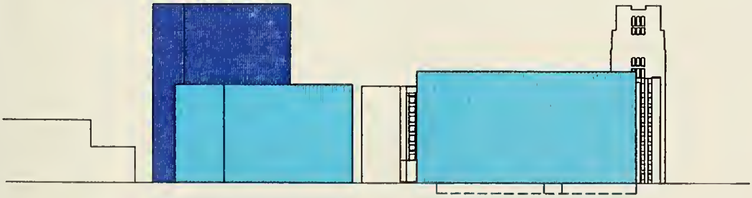
Figure 5.4-1



Southwest Elevation



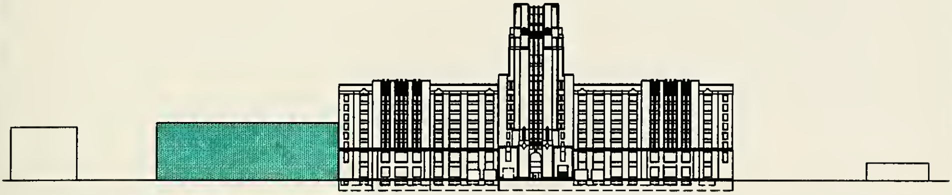
West Elevation



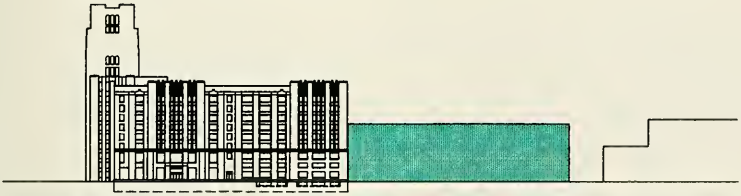
East Elevation

Block Massing Elevations Illustrating Olmsted Plaza
(Previously Approved)

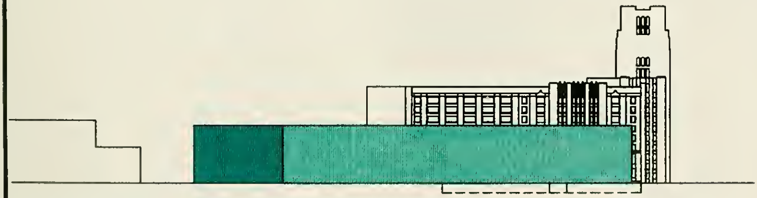
Figure 5.4-2



Southwest Elevation



West Elevation



East Elevation

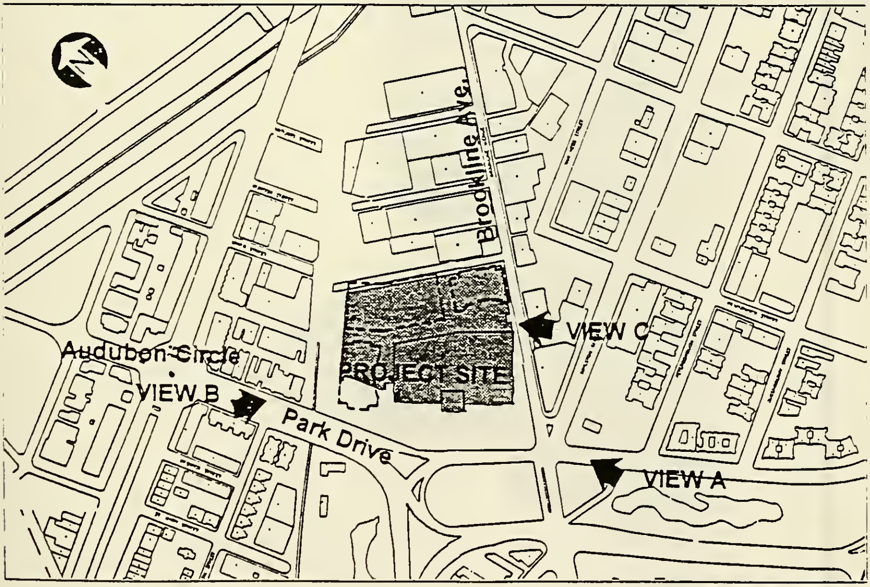
Block Massing Elevations Illustrating Fenway Plaza (SPIR/ NPC)

Figure 5.4-3

5.4.2 View Analysis

To further illustrate the proposal that Fenway Plaza's impact to the neighborhood is a positive one and better than the previously approved Olmsted Plaza, the view analysis undertaken in Olmsted Plaza's DPIR/DEIR has been reiterated. Figures 5.4-5 through 5.4-13 illustrate the existing urban views, previously approved Olmsted Plaza urban view and proposed Fenway Plaza views. Figure 5.4-4 illustrates the view location.

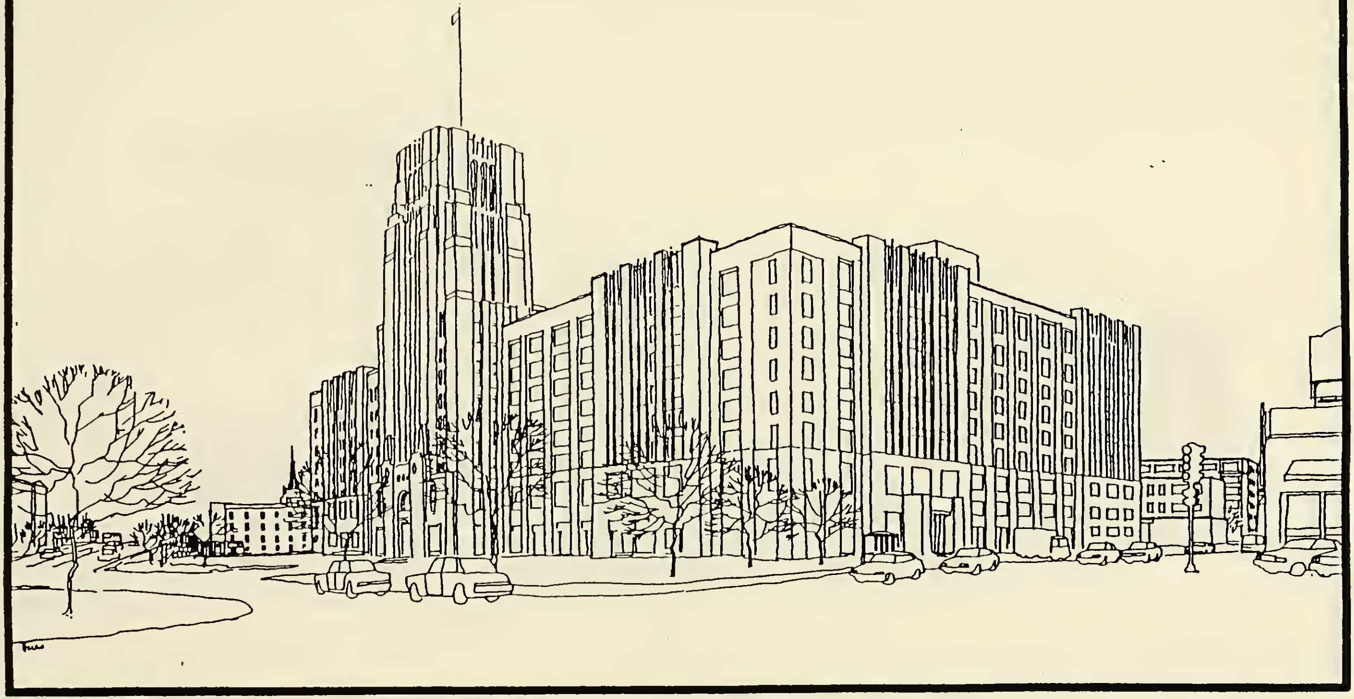
Such a comparison leads to the conclusion that the building massing and design have much less impact on the site than the approved high rise office and lab scheme, that the street life and pedestrian accommodations within the site are greatly improved, and the retail use fulfills a desire of the neighborhood.



View Locations
Figure 5.4-4

◌ Olmsted Plaza (previously approved project)

● Fenway Plaza (notice of project change)



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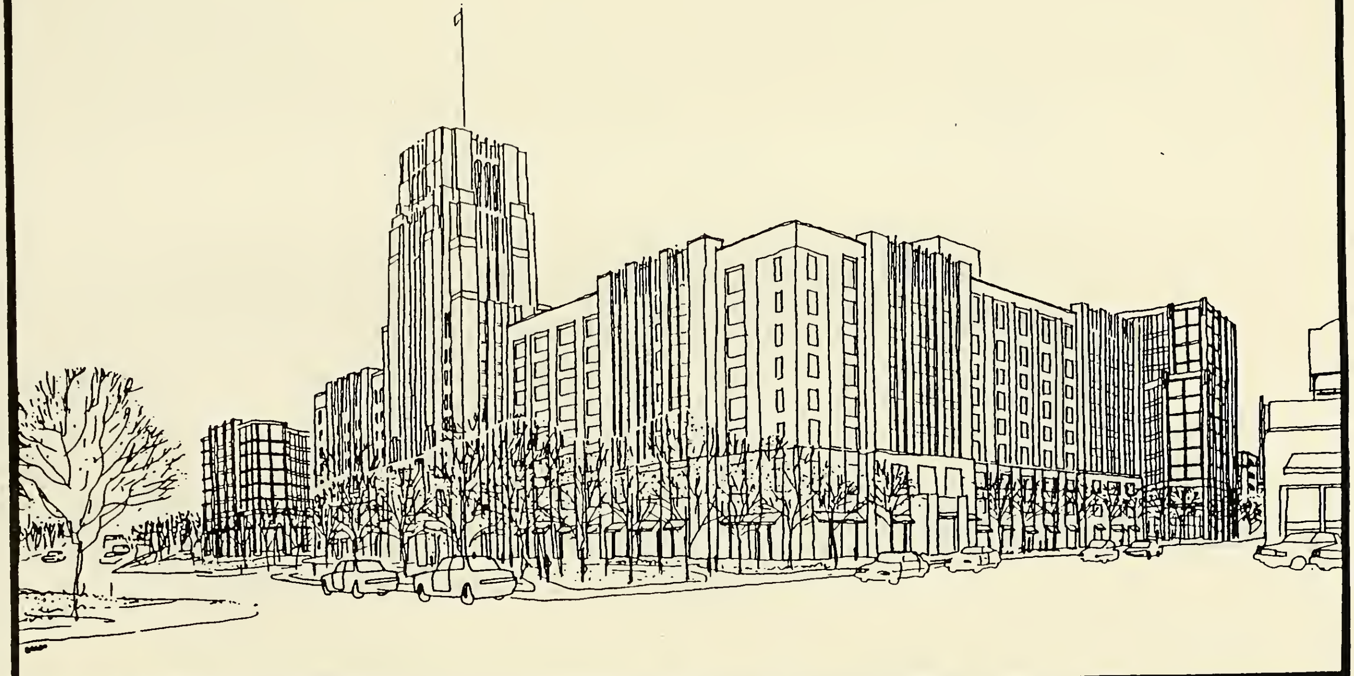
View A: Corner of Park Drive and Brookline Avenue
Existing Conditions
Similar to Olmsted Plaza E.I.R. Fig. 5.6-2

Figure 5.4-5



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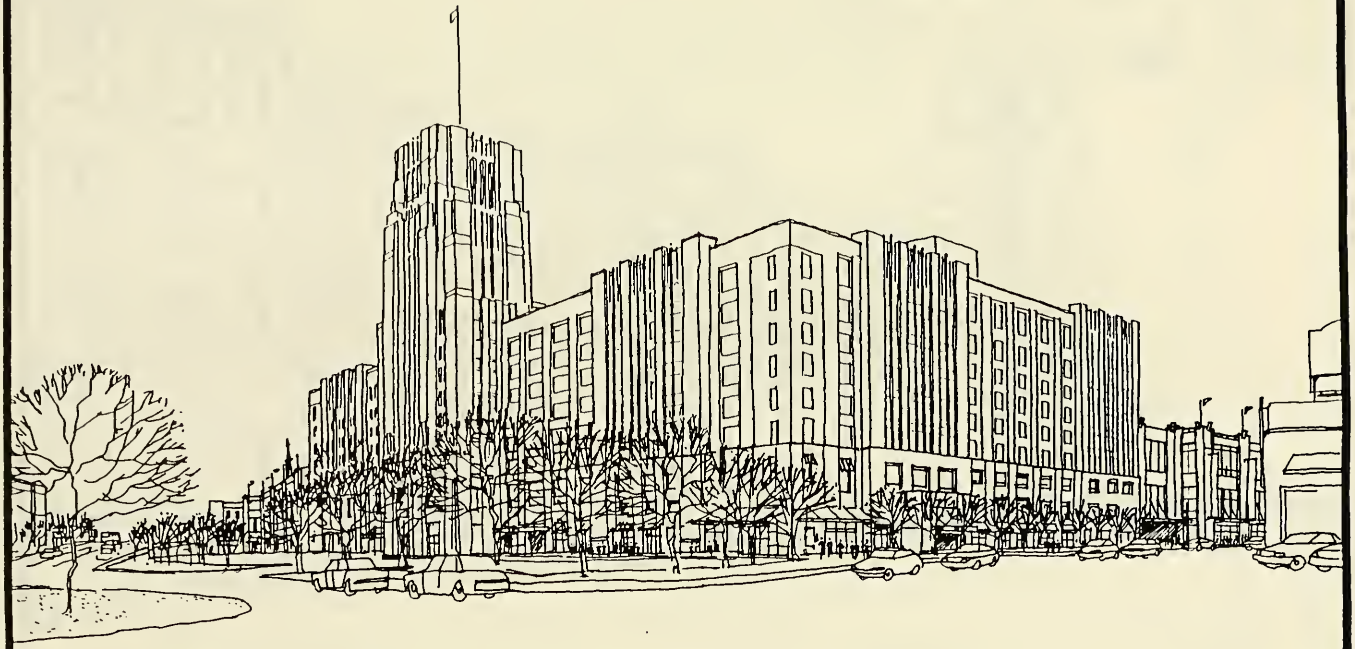
View A: Corner of Park Drive and Brookline Avenue
Olmsted Plaza (previously approved project)
Olmsted Plaza E.I.R. Fig 5.6-3

Figure 5.4-6



View A: Corner of Park Drive and Brookline Avenue
Fenway Plaza (notice of project change)

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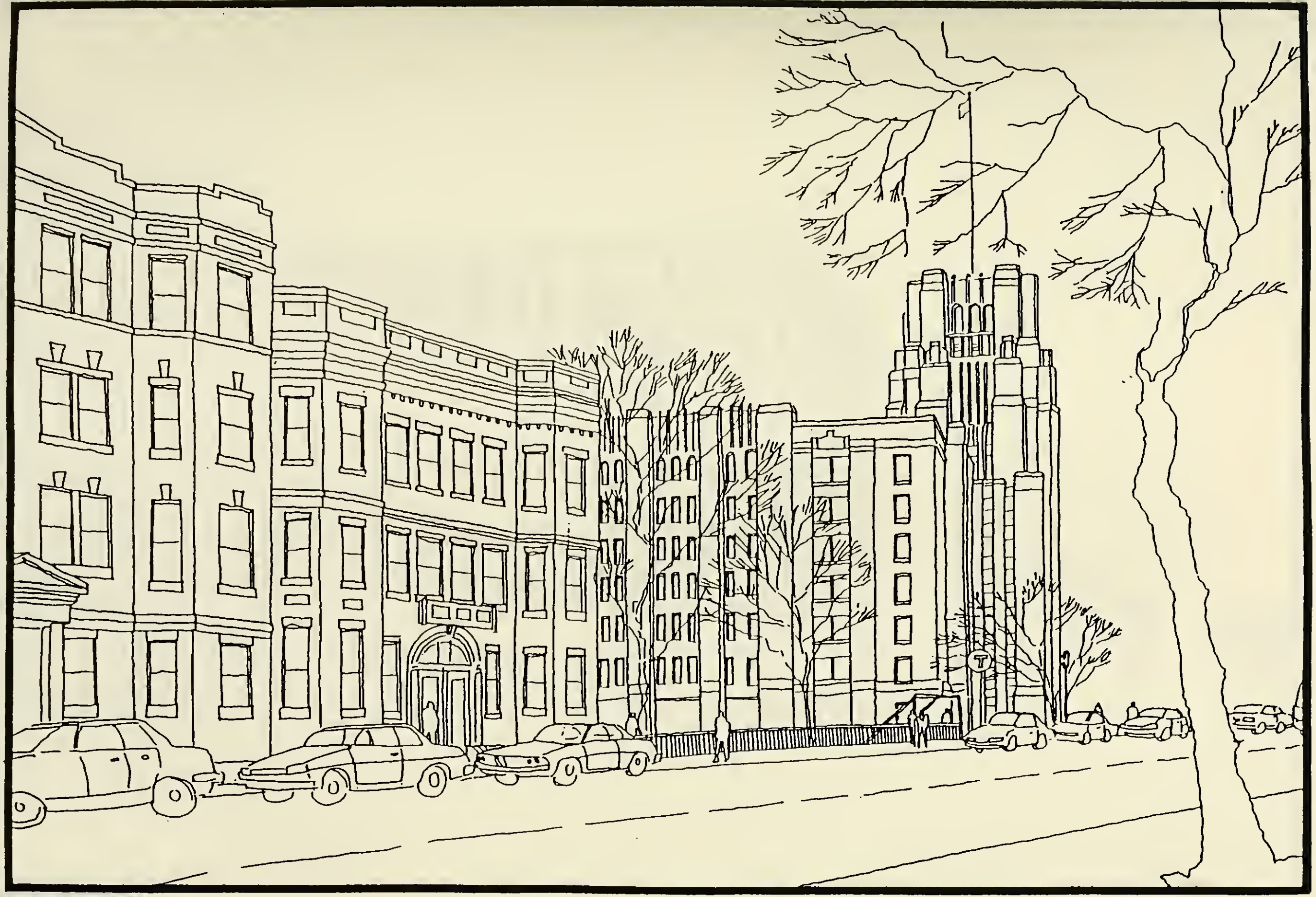
Figure 5.4-7



View B: Park Drive looking Southeast from Audubon Circle
Existing Conditions
Similar to Olmsted Plaza E.I.R. Fig. 5.6-4

Figure 5.4-8

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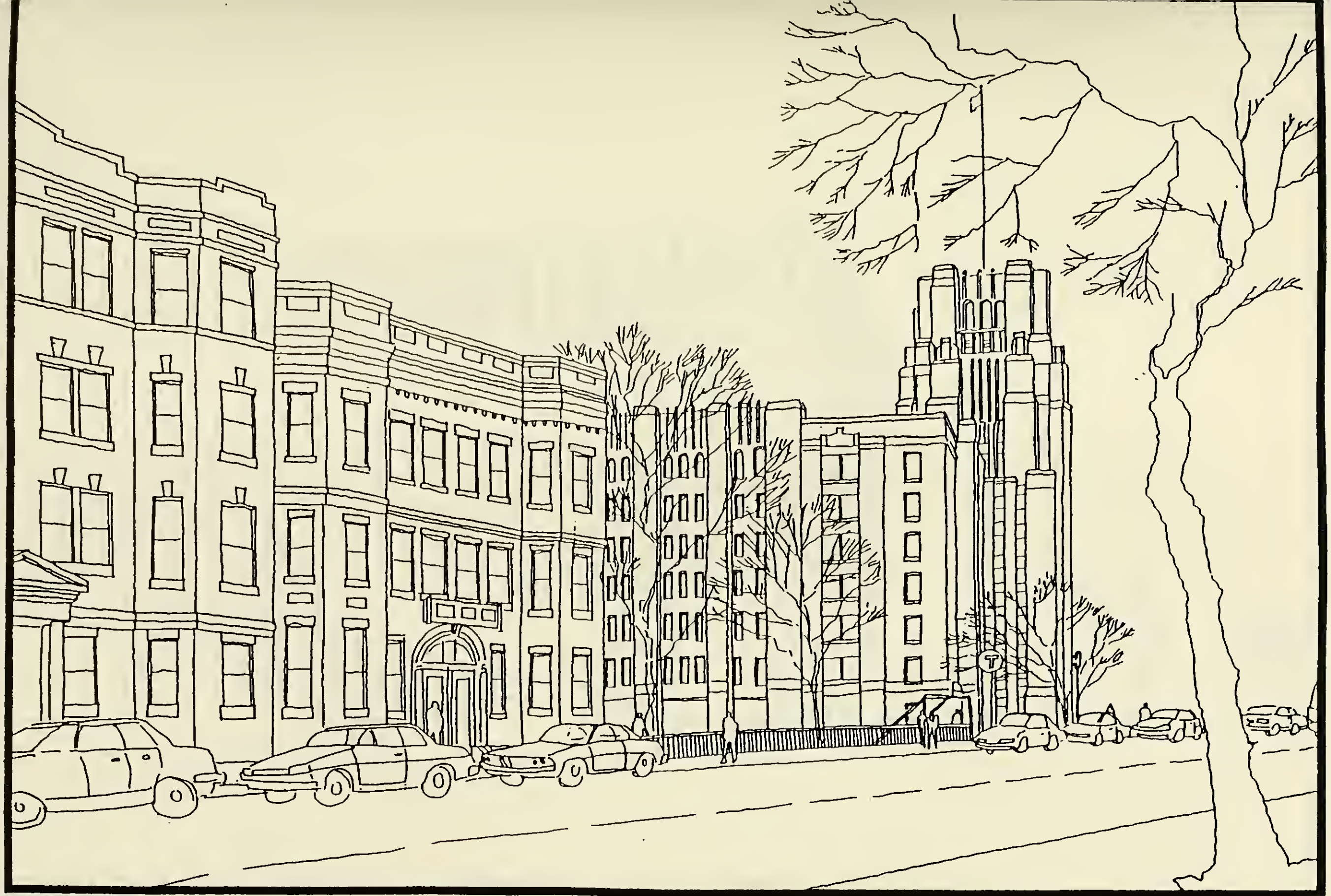

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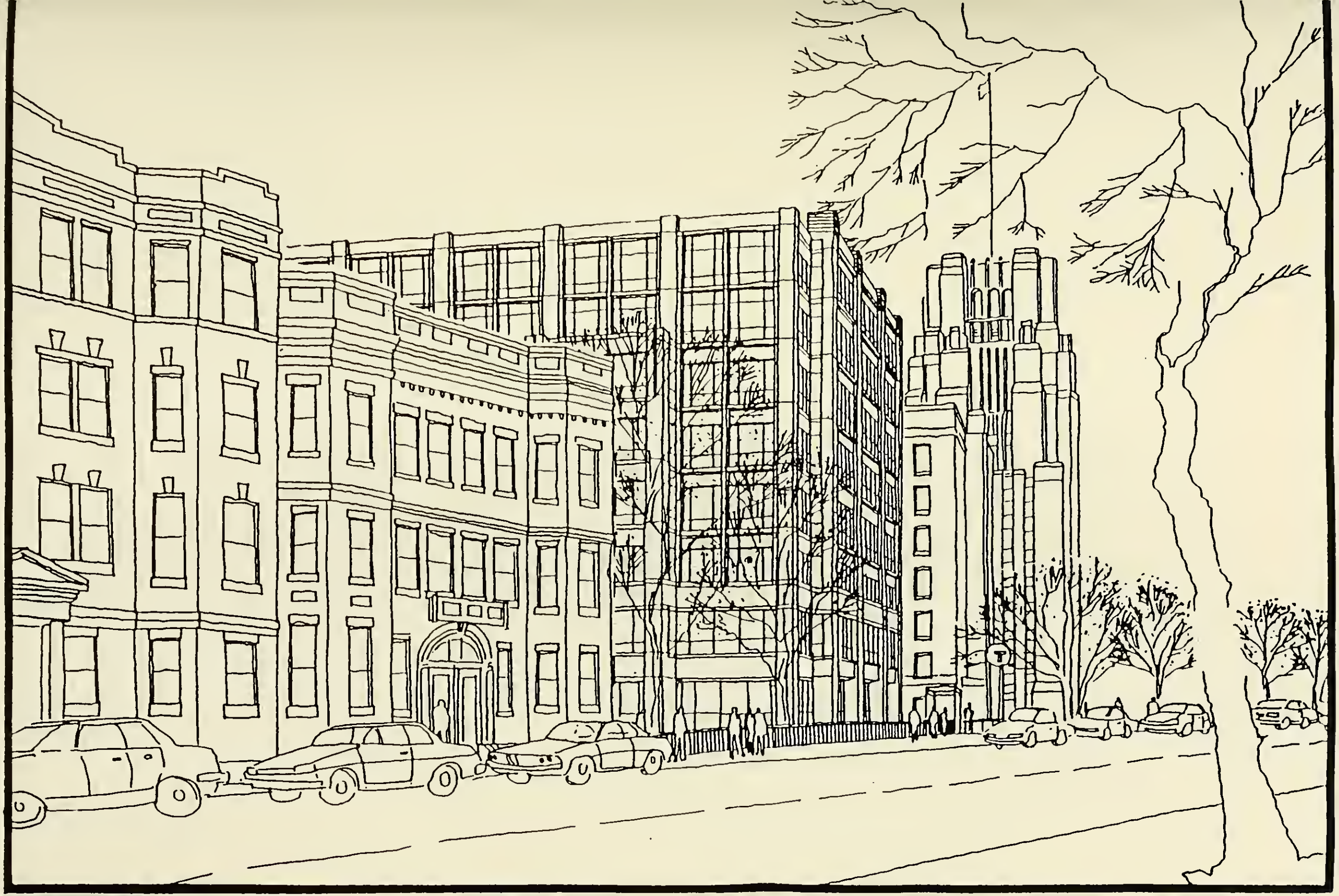
View B: Park Drive looking Southeast from Audubon Circle
Existing Conditions

Similar to Olmsted Plaza E.I.R. Fig. 5 6-4

Figure 5.4-8



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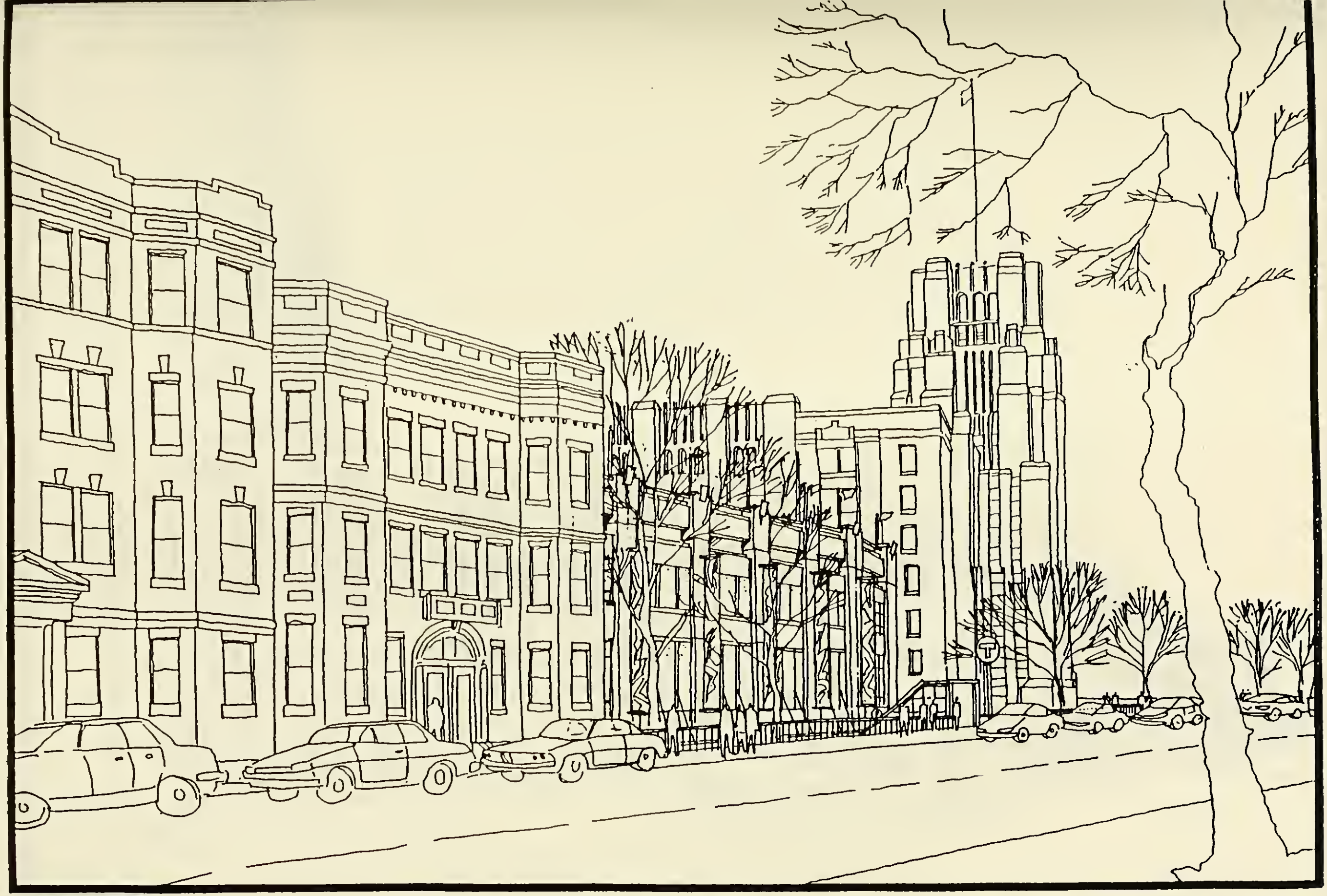
View B: Park Drive looking Southeast from Audubon Circle
Olmsted Plaza (previously approved project)

Olmsted Plaza E.I.R. Fig 5 6-5

Figure 5.4-9



View B: Park Drive looking Southeast from Audubon Circle
Fenway Plaza (notice of project change)

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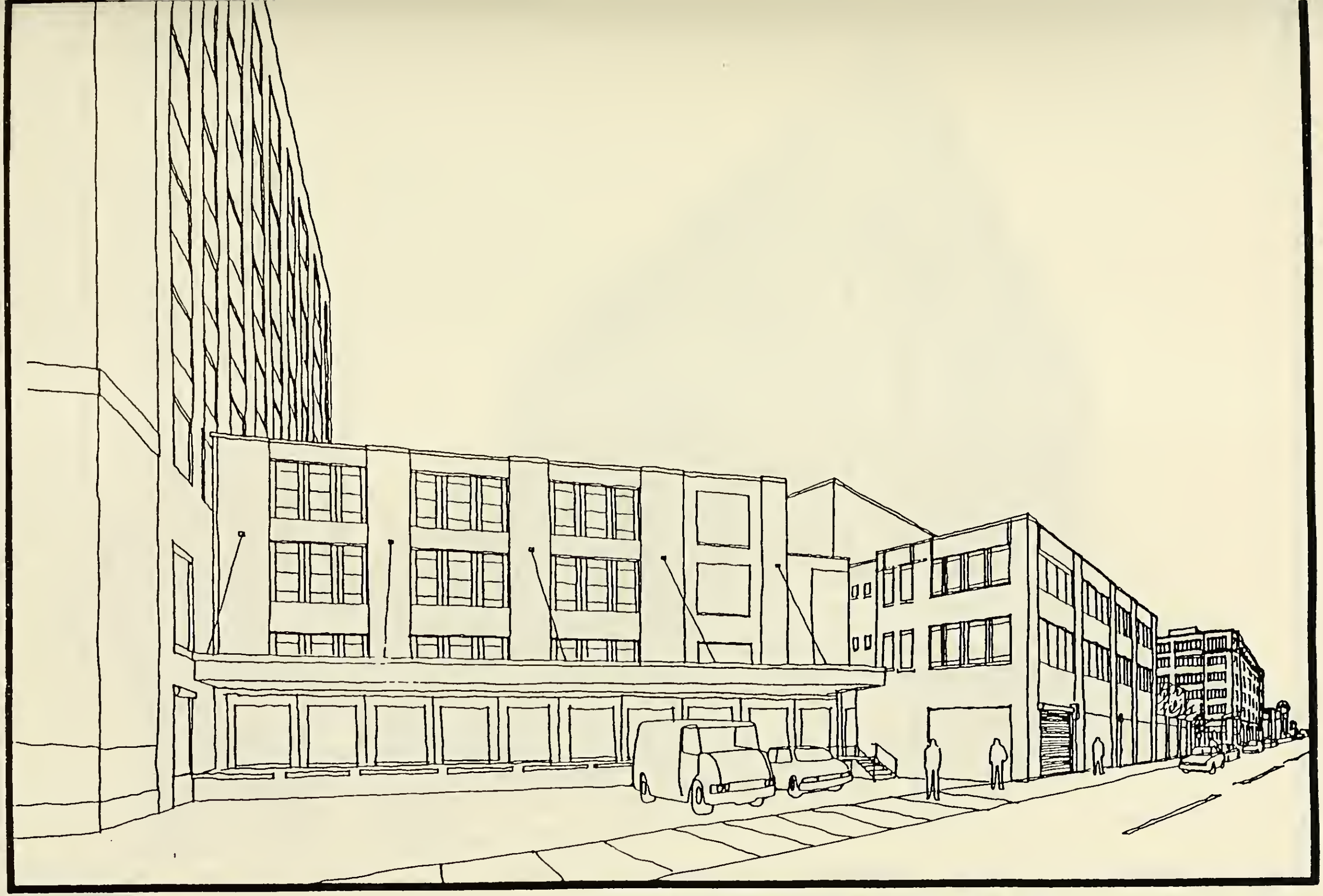
Figure 5.4-10



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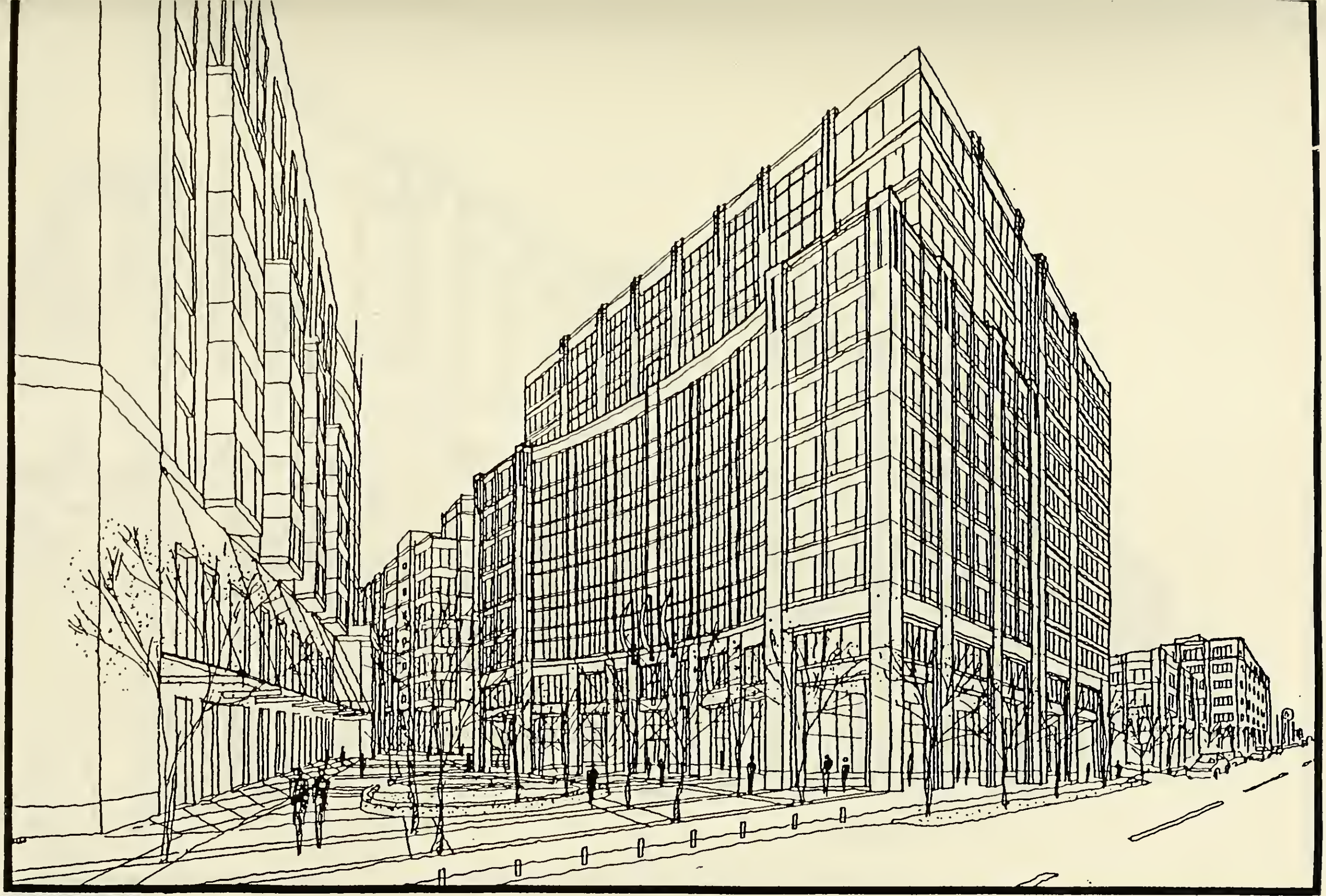
View C: Northwest From Brookline Avenue Into the Site Existing Conditions

Similar to Olmsted Plaza E.I.R. Fig. 5.6-6

Figure 5.4-11



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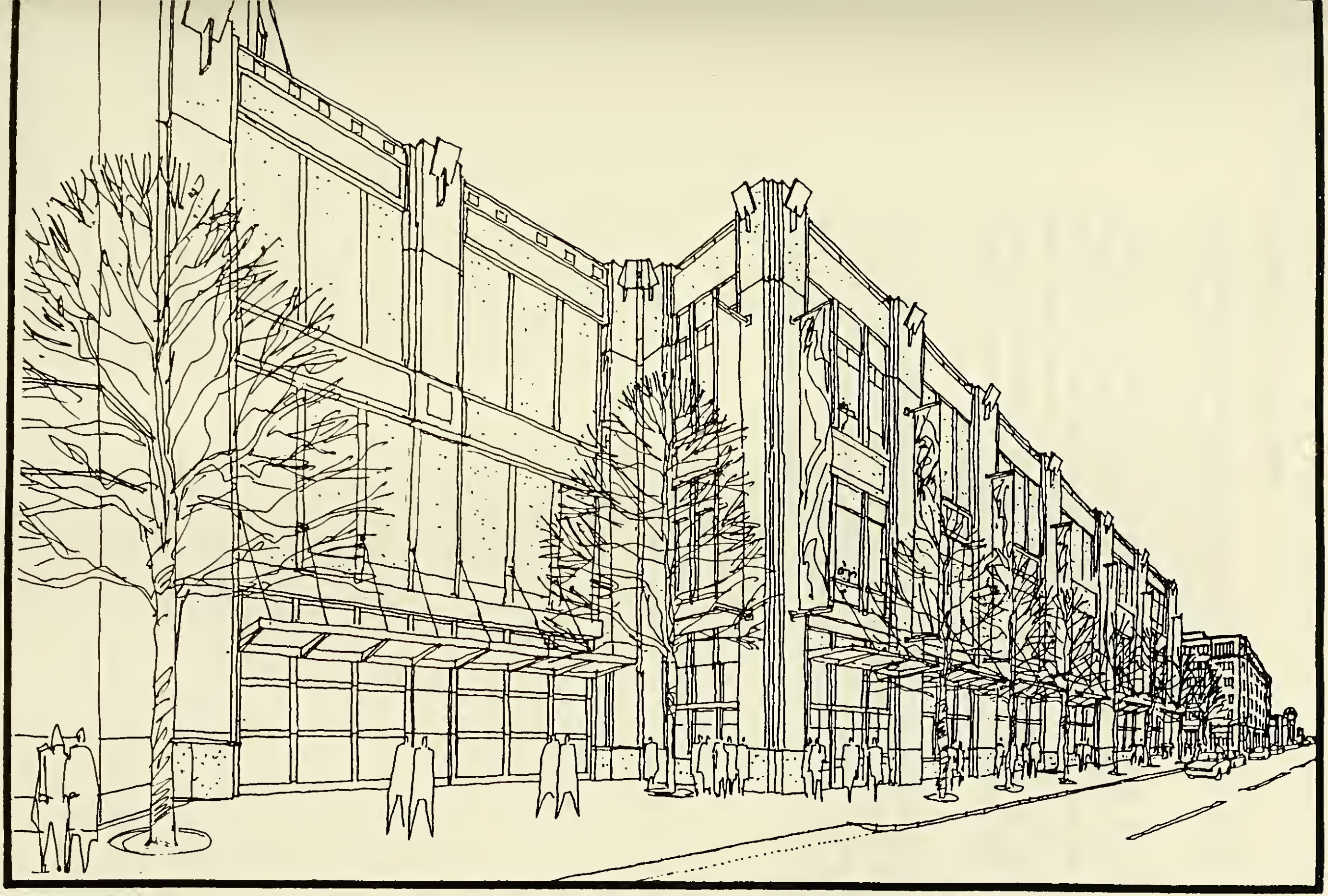
View C: Northwest From Brookline Avenue Into the Site
Olmsted Plaza (previously approved project)
Olmsted Plaza E.I.R. Fig. 5 6-7

Figure 5.4-12



View C: Northwest From Brookline Avenue Into the Site
Fenway Plaza (notice of project change)

Figure 5.4-13

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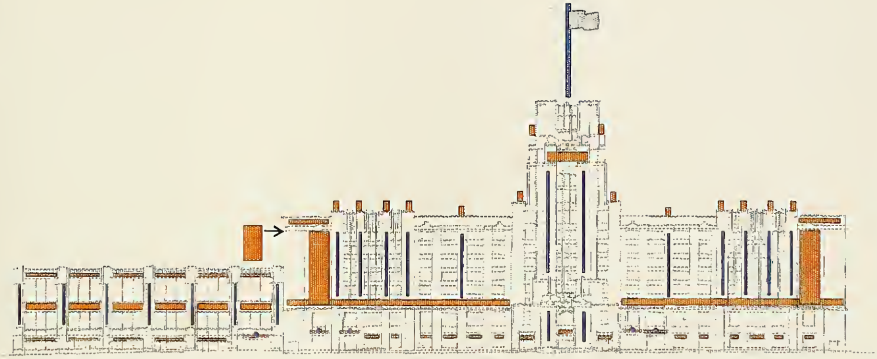
5.5 Project Identity and Signage

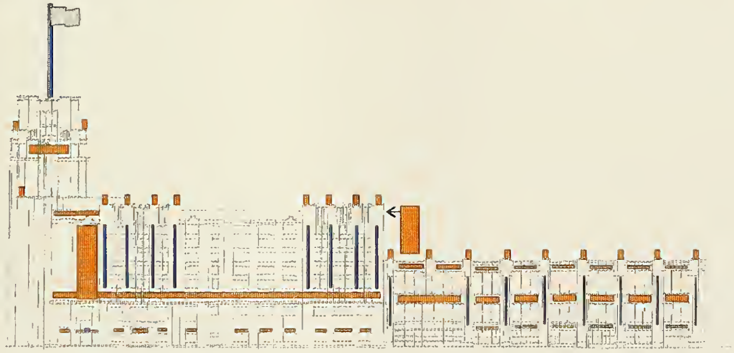
The revitalization of the site, existing buildings and street life is due to the combination of appropriate program uses and urban design.

The retail and public nature of the project will encourage use of this resource. To facilitate the success of Fenway Plaza, and “activate” the street edge it is essential that the project and tenants exhibit their presence as an active enterprise. This is proposed to be accomplished in several ways. The reconnection of the main active entrance to the Emerald Necklace provides the “front door.” Storefronts along public and pedestrian ways enliven these areas.

Project and tenant signage, and historic lighting provide announcements regarding the services and facilities available to the neighborhood. Figure 5.5-1 illustrates possible zones of signage. The proponent is working with review agencies to arrive at the appropriate means to ensure the project success and visual enhancement.



Park Drive Elevation



Brookline Avenue Elevation

Proposed Signage Zones On Elevations
Figure 5.5-1

- 🟠 Color indicated zones where signs, banners, or flags are proposed
- ▬●▬ Typical parking entrance
- 🔵 Color indicated zones where banners or flags are proposed

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6.0 HISTORIC RESOURCES

6.0 HISTORIC RESOURCES COMPONENT

6.1 Introduction

The Fenway Plaza project directly involves two of the Fenway's most significant historic resources. The centerpiece of the project, the 1928 Sears building (Sections A-D, on Figure 2.2-1), is a City of Boston Landmark, and is on the State and National Historic Registers, subject to the review of the Boston Landmarks Commission (BLC) and the Massachusetts Historical Commission. This designation imposes a number of architectural guidelines to be followed in the reuse of the building. The balance of the site has been designated a Protection Area by BLC.

The second historic resource to benefit from the project is the Emerald Necklace park system. The project sponsors have agreed to convey the Sears parcel across Park Drive to the City of Boston or its designee. The parcel was formerly a link in the "Emerald Necklace" park system. The voluntary conveyance will enable the city to reclaim the surface parking lot and will initiate its return to park land.

In the PIR/EIR for the previous Olmsted Plaza project, six area historic districts and five historic structures were analyzed. This previously approved analysis has been utilized in design and planning considerations for Fenway Plaza and excerpts of which have been provided in the attached Appendix 6.0.

The following is a description of the Fenway Plaza proposal and its strategies for restoring the landmark building, reconnecting the Emerald Necklace, and revitalizing the site in a historically appropriate manner.

The conclusion of this analysis is that the project change from the previously approved Olmsted Plaza medical laboratory complex to the proposed Fenway Plaza retail center represents an improvement to the historic nature of the site and buildings.

6.2 Sears Building Renovation/Restoration

The original Sears building was designed as a merchandise distribution center with a public retail component occupying most of the ground floor and part of the basement. Upper floors were used mainly as cataloguing and warehouse space. Shipping, receiving and parcel post facilities occupied the rear of the ground floor adjacent to rail connections. These facilities were substantially expanded in the 1950s and 60s, displacing the retail store and filling new additions to the rear of the building, although a surplus store was operated on the site until the building closed permanently. The projected redevelopment of the Sears building proposes a mixture of uses not incompatible with the original design. Building services will be upgraded as required to meet anticipated needs. The basis of Fenway Plaza's restoration and re-use strategy is the Boston Landmark Commission's "Report for the Sears Building," Standards and Criteria Sections 8 and 9, as well as the requirements of the Massachusetts Historical Commission in association with the Department of the Interiors' National Park System. The proponents of Fenway Plaza are working with these agencies in defining the appropriate interpretation of the criteria and physical interventions. The proponent believes that the proposed Fenway Plaza is consistent with the Standards and Criteria as demonstrated below.

Redevelopment of the main Sears Building to an open parking structure requires a number of alterations to the existing fabric of the building to bring it up to current standards of safety, energy efficiency and marketability. These alterations include the reopening of bricked-up storefront windows and entrances at the ground floor level, the provision of new passenger elevators and interior stairways, the installation of new heating and ventilating equipment where required and the removal of the glazing from the steel window frames, while keeping the existing steel window frames in place. Consideration is being made for the addition of a mesh screen and lighting for these openings. These strategies are being reviewed with historic and urban design agencies and will be utilized based upon their merit. In addition all strategies related to openings are consistent with the spirit of the historic facade and are reversible should the building's future dictate. (The previous Olmsted Plaza scheme had originally planned to replace the existing windows with new windows of "compatible" design which would not be retrievable.)

The alterations to the interior of the Sears Building to turn it into an open parking structure are for the most part internalized and will have minimal effect on the building's exterior. Most of the existing interior is unfinished warehouse space, with some modern offices and a cafeteria that are not historically significant. The only finished spaces are the main entrance and public stairs, and the adjoining private lobby and stairs, likewise of little importance. Proposed changes to the interior involve cutting of openings in the floor plates for vehicular ramps with escalator and stairwell openings associated with public circulation areas, new artificial lighting and the finishing of public areas with appropriate materials.

Exterior alterations to the street facades will be limited to the removal of glazing from the windows and enlarging of the ground level window openings and the provision of six vehicular entrances. There will also be two vehicular openings at the fifth level on the west side for the direct ramp up from Fullerton Street through the new retail building to the monthly parking floors. On the west side of the building the existing loading docks will be removed, as the three-story retail structure will extend toward Park Drive. The Sears building will remain as is above the three-story retail structure on the west and north elevations. Signage will be added to the exterior facades in a manner agreeable to reviewing agencies. See the discussion in the Urban Design section.

Alterations to the building's roof may include addition of required rooftop ventilating equipment. If so, this will be set back from the parapet line at a sufficient distance so as not to be visible from the street. Building services will be upgraded as required to meet anticipated needs.

The projected redevelopment of the Sears Building in the Fenway Plaza project proposes a mixture of uses compatible with the original design. Retail space, again, is provided on the site in the three-story retail structure that abutts the Sears Building on two sides. Parking is provided on all levels of the Sears Building, except the tower, and in the basement of the retail structure. The new retail building is proposed to connect the historic landmark building on two sides in a manner similar to the current conditions.

6.3 New Construction

The new construction is located within the "protection area" and is proposed to act as a back-drop to the prominent landmark. The new retail building proposed for the Fenway Plaza site represents a contemporary and contrasting interpretation of the architectural forms and details present in the Sears Building and its neighbors.

A careful weaving of the existing low rise structures on the site and new construction will provide three levels of stores on the site. The proposed format of these stores is large floor plates, 40,000-100,000 square feet each.

The design of the new street front facades is intended to provide life and activity at the ground level as well as reinforce and reflect the dignity of the landmark. The use of appropriate materials, brick, cast stone, steel and EIFS with massing and scaling devices produces a new design in harmony with the old.

Fenway Plaza's new three story massing and scale (similar to existing conditions) sharply diverges from Olmsted Plaza's previously approved multi-building site (13 story - 151 foot office, 9 story - 100 foot office, 92 foot garage), all competing in height, with the landmark structure.

Please see Figures 5.4-1, 5.4-2 and 5.4-3 which illustrate relative massing.

6.4 Contextual Relationships

The impact of Fenway Plaza on the historic resources of its surrounding neighborhoods will be positive in nature. The project will strengthen the connection of the Sears Building to the Brookline Avenue streetscape with a new building of compatible scale, materials, mass and use to those presently existing there. It will address the Audubon Circle neighborhood in a similar fashion by providing a transitional element between the Sears Building and the apartment buildings along Park Drive that will continue the articulation of the main Sears facade while responding to the apartment buildings in scale.

Full advantage is taken of the distance afforded by the MBTA right of way to ease the transition in scale between the new addition, and the prevailing scale and texture of Park Drive's light gray brick apartment buildings. The prominent view of the Sears Building from Audubon Circle is kept by preserving the historic setback along Park Drive in the new retail addition, unlike Olmsted Plaza.

The impact of the project on historic buildings and districts is minimal and dramatically less than the previously approved Olmsted Plaza, since the new addition is not substantially larger than the existing building it will replace.

6.5 Shadow Impacts on Historic Building Facades

The new retail building is planned to be approximately the same height as the existing auxiliary buildings behind the Sears warehouse, and is "attached to" the main building. Therefore, the proposed retail facility will not generate any new significant shadow impacts. The entire project, with its retail building in similar height as the existing three story buildings on the site, will have minimal, if any, impact on adjacent historic streets and properties. There will be a slight increase in shadows along Fullerton Street over existing conditions because the new retail building will be closer to the street than the existing buildings. However, there will be less shadow impact on adjacent streets and properties then was the case with the Olmsted Plaza Project, with its significantly taller, (9 - 13 story vs. 3 story) multiple buildings. No historical resources in the project area are affected by new shadows from the Fenway Plaza development. The complete study for Fenway Plaza is further described in Section 4.2 of this report.

6.6 Light and Air Reduction Impacts on the Existing Sears Building

The Sears Building is exposed to daylight on all sides and is not affected to any degree at present by shadows cast by adjoining buildings. The new retail structure will be marginally taller than the current adjoining buildings, and similar in plan. Additionally, the existing Sears Building will have it's glazing removed to turn it into an open parking structure. Therefore, light and air reduction impacts on the existing Sears Building, if any, will be minimal and significantly less than the previously approved Olmsted Plaza.

6.7 Impact of Proposed Demolition

The development of Fenway Plaza calls for the partial demolition of the building additions, as described above, and the opening up of the ground floor windows and vehicular entrances, as well as removal of glazing (except for the tower), the opening up of existing concrete floor slabs in selected locations for vehicular ramps and stair and escalator openings, and the removal of all non-structural partitions. Any planned demolition will follow the architectural guidelines set by the Boston Landmarks Commission in consideration of the building's status as a Boston Landmark.

In addition, the amount of demolition on the site and the landmark building is less than or equal to that of the previously approved Olmsted Plaza.

6.8 Impact of Pedestrian and Vehicular Access

Vehicular access points to the historic landmark are minimal. Openings are provided in scale and size to the existing window openings above and located where historic openings occured between vertical piers. The amount of truck openings are reduced in this scheme from those existing. Pedestrian access is predominantly along the perimeter of the historic building with the main entrance being re-used and restored. Landscaping is added with new paving patterns which differentiate pedestrian and auto areas. The goal is to re-create a new “front door” more in the spirit of the historic entry than existing conditions.

6.9 Proposed Emerald Necklace Park

In addition to the restoration of the main building, the project will also contribute to the area's historical resources by causing the conveyance to the City of the "missing link" parcel of the Emerald Necklace for restoration by the City as park land. The proponent will assist the City in identifying sources of funds which can be applied to restoring the park land. Absent this project, the parcel is likely to continue to be used as a parking lot for the foreseeable future.

7.0 INFRASTRUCTURE SYSTEMS

7.0 INFRASTRUCTURE SYSTEMS

7.1 Introduction

Because the proposed redevelopment can potentially affect local infrastructure systems, this report was prepared to address the infrastructure impact issues and present mitigative alternatives.

The infrastructure impact analysis for the proposed Fenway Plaza redevelopment is primarily based on the characteristic utility demand projections for both the historic use of the Sears facility and the proposed redevelopment program that includes a parking structure and a 450,000 SF GLA retail building. This approach was taken to provide an understanding of the historical demand placed opon the infrastructure systems by the Sears facility, and to serve as a guideline for determining the impact of the redevelopment.

The following sections describe the existing infrastructure systems and their capacity to serve the proposed project. Expected utility use levels for each infrastructure element are presented, and estimates are made for the demands associated with each space category in the proposed project. For each infrastructure element, the impact of the increased demands on the system is discussed and service connection information is provided. Planned infrastructure system improvements and mitigation efforts to moderate the impact of the project are also presented.

This report addresses the impacts of the proposed project on the following infrastructure systems:

- Water Distribution
- Wastewater Disposal
- Storm Drainage
- Electric Service
- Electrical Communications
- Natural Gas Service

The Fenway Plaza Project will have a much lesser impact on infrastructure systems than the previously proposed Olmsted Plaza Project.

7.2 Water Distribution Systems

This section presents an analysis of the proposed Fenway Plaza project's anticipated impact on existing water supply facilities. The analysis includes a description of existing facilities, an estimate of future water use, and an evaluation of the existing facility's adequacy to handle the increased demand. Fenway Plaza is expected to use approximately 63,000 gallons per day (gpd) of water, whereas Olmsted Plaza was expected to use up to 217,000 gpd of water.

7.2.1 Description of Existing Facilities

Water service for domestic and fire protection use is supplied from a Boston Water and Sewer Commission (BWSC) Southern Low Service (SLS). Domestic water is fed to the Main Sears Building through one (1) 6" connection to the 12" SLS main located in Brookline Avenue and park Drive. Fire protection is fed to the Sears facility through eight (8) separate connections from the same service. Figure 7.2-1 details the location of water mains within the project area.

7.2.2 Capacity of Existing Facilities

Previous discussions with BWSC personnel during the Olmsted Plaza study and past system-wide studies of hydrant flow tests performed by BWSC indicate that flow and pressure appear to be adequate to serve the development's domestic water and fire fighting requirements. Previous hydrant flow tests performed in the site vicinity are summarized in Table 7.2-1. These show that system capacity was available to serve the former proposed development's peak demand. The peak demand for the current Fenway Plaza project is 225 gpm. Additionally, the typical fire requirement of 2,000 gpm can be met at the site. During the Fenway Plaza design process new hydrant flow tests will be scheduled with BWSC to confirm and update existing data, if required by the BWSC.

7.2.3 Water Usage

Historical average daily usage for the existing Sears facility was estimated at 66,000 gallons per day (GPD) for domestic use (with a peak of 130 GPM) plus 7,560 GPD for summer cooling for, a total of 73,560 GPD (with a peak of 143 GPM).

The Olmstead Plaza project was estimated at 144,760 GPD for domestic use (with a peak of 302 GPM) plus 73,800 GPD for summer cooling, for a total of 218,560 GPD (with a peak of 353 GPM).

The proposed Fenway Plaza project (retail and parking) is estimated to use approximately 63,000 GPD for domestic use (with a peak of 225 GPM). Water will not be used for cooling.

7.2.4 Impacts and System Connections

The proposed Fenway Plaza project impact is far less than the Olmsted Plaza impact and also less than the original water usage. The existing SLS has an available domestic capacity of 1,740 GPM at 50 psi and a fire flow capacity of 3,430 GPM at 20 psi.

Service to the proposed new structure will be provided by the construction of separate service connections to the BWSC distribution system in adjacent roadways, with new distribution systems developed on site for each of the major elements of the project. Modifications to existing service connections, construction of new service connections, and system improvements will be incorporated into the general build out schedule for Fenway Plaza to minimize impacts on adjacent roadways. All modifications to existing systems and construction of new systems will be in accordance with BWSC standards and practices.

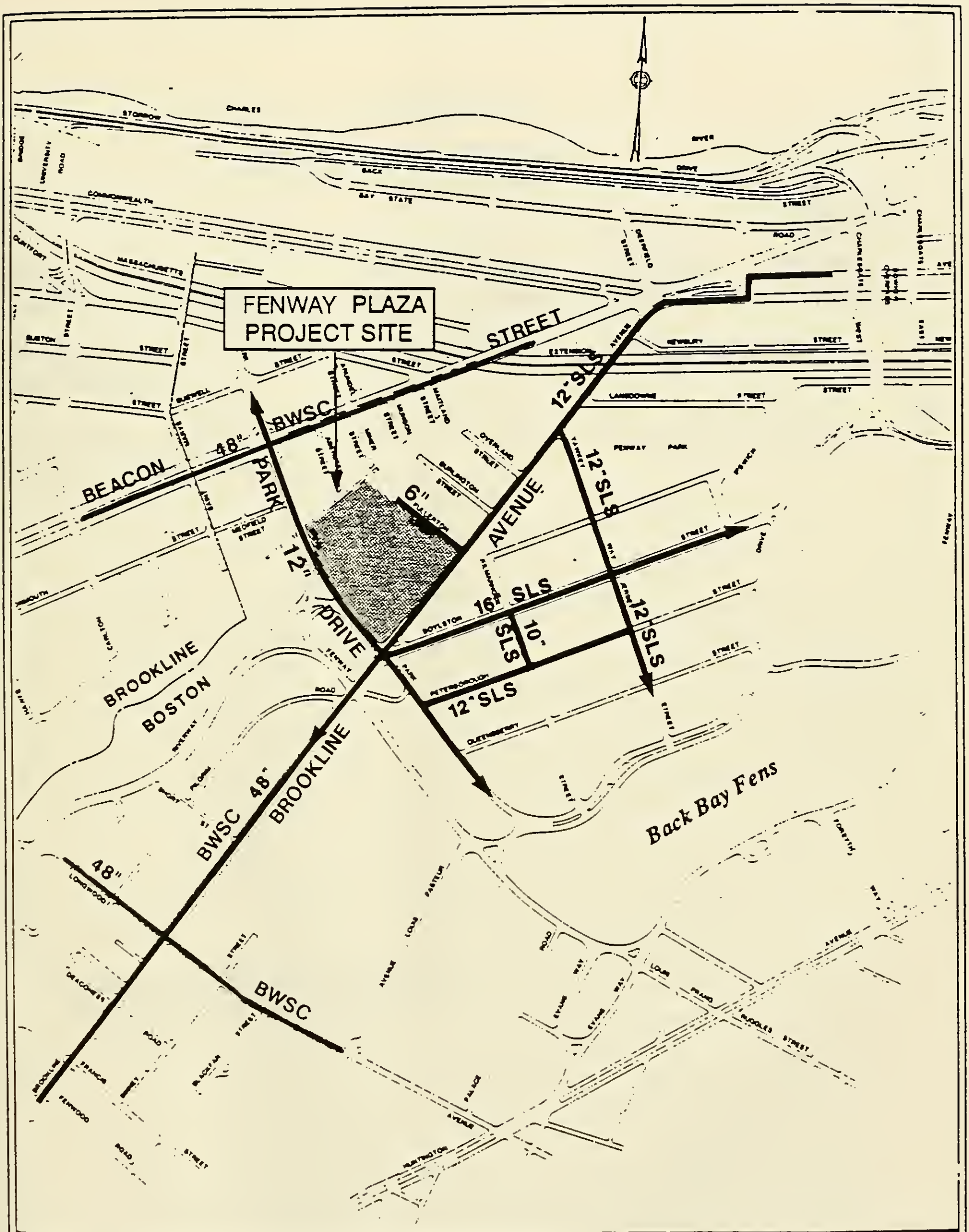

FIGURE 7.2-1
WATER MAIN LOCATIONS

TABLE 7.2-1

HYDRANT FLOW TESTS*

Street/ Location	Service	Test Date	Static Pressure	Flow (gpm) @ Residual Pressure	Flow (gpm) @ Residual Pressure of 20 psi**
Brookline Ave. near Park Drive	SLS 12"	4/86	62 psi	1740 @50 psi	3430
Pasteur near Fenway	SLS 12"	6/88	62 psi	2642 @ 54 psi	6464

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* Test data obtained from BWSC, Boston, MA

** Calculated by BWSC, Boston, MA

TABLE 7.2-2

COMPARISON OF AVERAGE DAILY WATER USAGE

(Domestic Use Based on Title V Data)

Structure	Use Category	Area (gsf)	Average Domestic (gpd)	Peak Cooling* (gpd)	Total Use (gpd)
A. **Olmsted Plaza**					
Main Building					
	Clinical	158,540	13,080	7,925	21,005
	Office	236,208	19,500	11,800	31,300
	R & D	523,517	43,200	26,175	69,375
	Retail	60,880	3,350	3,350	6,700
	Day Care	10,147	1,885	250	2,135
	Athletic Club	31,708	8,720	950	9,670
	Subtotals	1,021,000	89,735	50,450	140,185
Park Drive					
	Office	216,000	17,820	10,800	28,620
Brookline Avenue					
	Office	309,000	25,510	15,435	40,945
	Totals	1,546,000	133,065	76,685	**209,750**
B. **Sears Facility**					
	Office, Retail and Warehouse Total	1,300,000	66,000	7,560	**73,560**
C. **Fenway Plaza**					
	Retail - Total	450,000	50,000	-0-**	**63,000**

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* Summer Use Only.

** Electrically Cooled System.

7.2.5 System Improvements and Mitigation Measures

New Development systems shall meet or exceed Massachusetts 780 CMP State Building Code requirements designed to minimize water use. Building design features to reduce water consumption will include new water saving features, low flow lavatories, water closets and urinals, automatic lavatory faucets, etc. This should result in a water savings of approximately 15% over conventional systems.

7.3 Sewer and Storm Drain Systems

7.3.1 Sanitary Sewers

Project Comparisons

The Fenway Plaza project is estimated to generate approximately 62,000 gpd of sanitary sewer flows, whereas Olmsted Plaza was estimated to generate up to 143,895 gpd. Furthermore, Olmsted Plaza would likely have generated wastes that are classified as industrial by the MWRA; such discharges will not be made from Fenway Plaza. With respect to storm drain systems, there is no increase in storm water runoff from this project to the Muddy River conduit, as compared with Olmsted Plaza.

Description of Existing Facilities

As shown in Figure 7.3-1 and 7.3-2, the Fenway Plaza project site is served by a separate local sanitary sewer that is owned and operated by the Boston Water and Sewer Commission (BWSC). The existing Sears facility is serviced by a 15" cast iron connection with the 24" X 31" brick sewer located in Brookline Avenue. This sewer carries flows southwesterly along Brookline Avenue, across Park Drive and the proposed Emerald Necklace Park, to the Massachusetts Water Authority's (MWRA) Charles River Valley Sewer. This interceptor carries flows in a generally southeasterly direction, along The Fenway and Vancouver Street, to the Ward Street Headworks. From there, the Boston Marine Drainage Tunnel conveys flows to the Deer Island Treatment Plant. At Deer Island, wastewater currently receives primary treatment and chlorination before discharge to Boston Harbor at President's Road.

Capacity Evaluation - Existing Facilities

A capacity evaluation was made, under the Olmsted study, of the existing local sanitary sewers that link the Sears facility with the Charles River Valley Sewer (CRVS). This evaluation was based upon sewer sizes, slope and segment length data taken from BWSC wastewater system maps. The results of this capacity analysis, which are shown in Table 7.3-1, generally show that there is adequate capacity to accept additional sanitary flows from the development of the Sears facility.

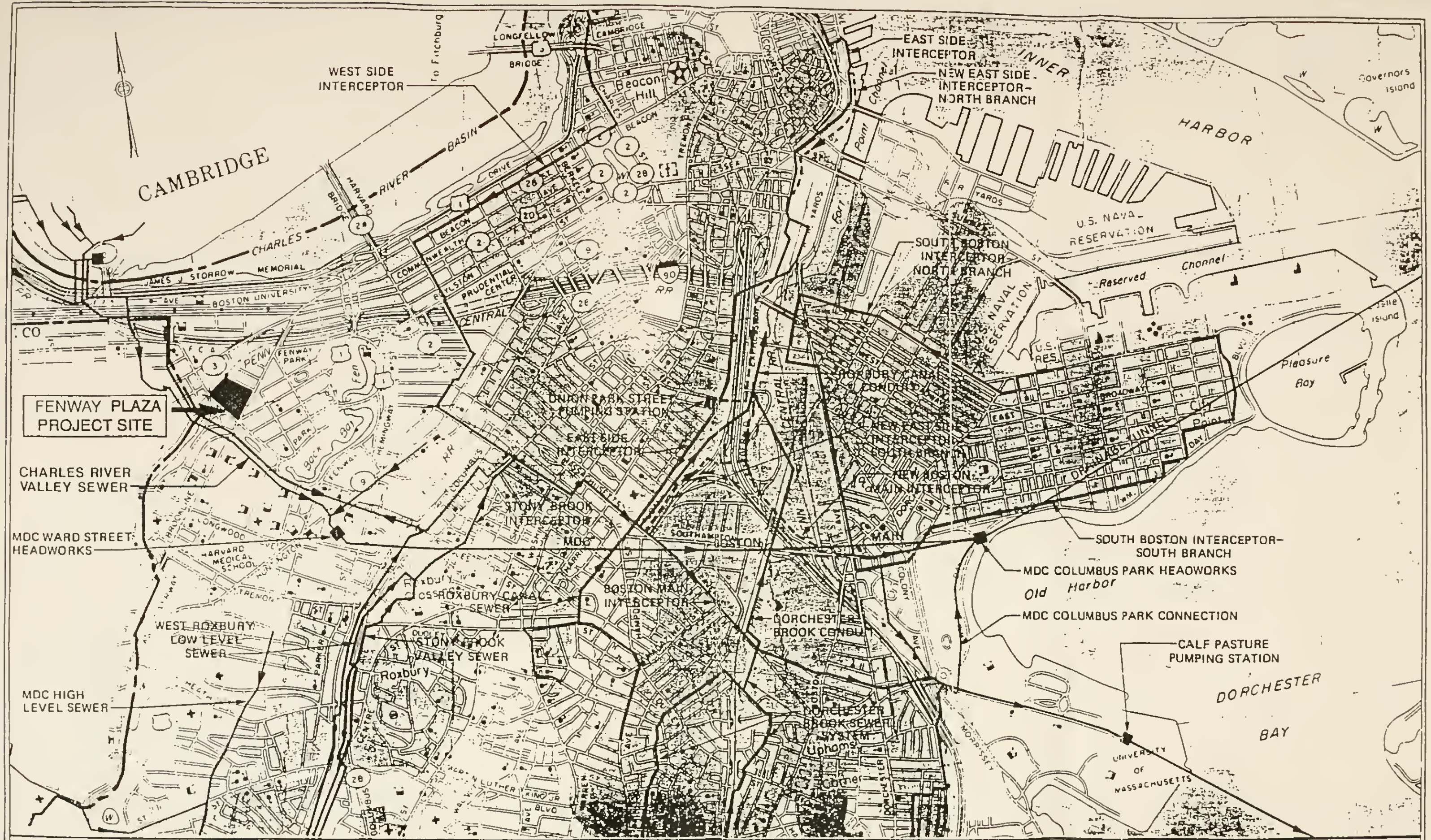
WEST SIDE INTERCEPTOR
EAST SIDE INTERCEPTOR
NEW EAST SIDE INTERCEPTOR NORTH BRANCH
CAMBRIDGE
INNER HARBOR
Governors Island
Beacon Hill
CHARLES RIVER BASIN
U.S. NAVAL RESERVATION
SOUTH BOSTON INTERCEPTOR NORTH BRANCH
Reserved Channel
Castle Island
Pleasure Bay
FENWAY PLAZA PROJECT SITE
UNION PARK STREET PUMPING STATION
EAST SIDE INTERCEPTOR
ROXBURY CANAL CONDUIT
NEW EAST SIDE INTERCEPTOR SOUTH BRANCH
NEW BOSTON MAIN INTERCEPTOR
CHARLES RIVER VALLEY SEWER
STONY BROOK INTERCEPTOR
MDC WARD STREET HEADWORKS
SOUTH BOSTON INTERCEPTOR SOUTH BRANCH
MDC COLUMBUS PARK HEADWORKS
Old Harbor
ROXBURY CANAL SEWER
BOSTON MAIN INTERCEPTOR
MDC COLUMBUS PARK CONNECTION
DORCHESTER BROOK CONDUIT
WEST ROXBURY LOW LEVEL SEWER
STONY BROOK VALLEY SEWER
CALF PASTURE PUMPING STATION
Roxbury
DORCHESTER BAY
MDC HIGH LEVEL SEWER
DORCHESTER BROOK SEWER SYSTEM
Uphams Corner
UNIVERSITY OF MASSACHUSETTS

FIGURE 7.3-1
FENWAY PLAZA - MAJOR INTERCEPTORS
PROJECT SITE TO DEER ISLAND

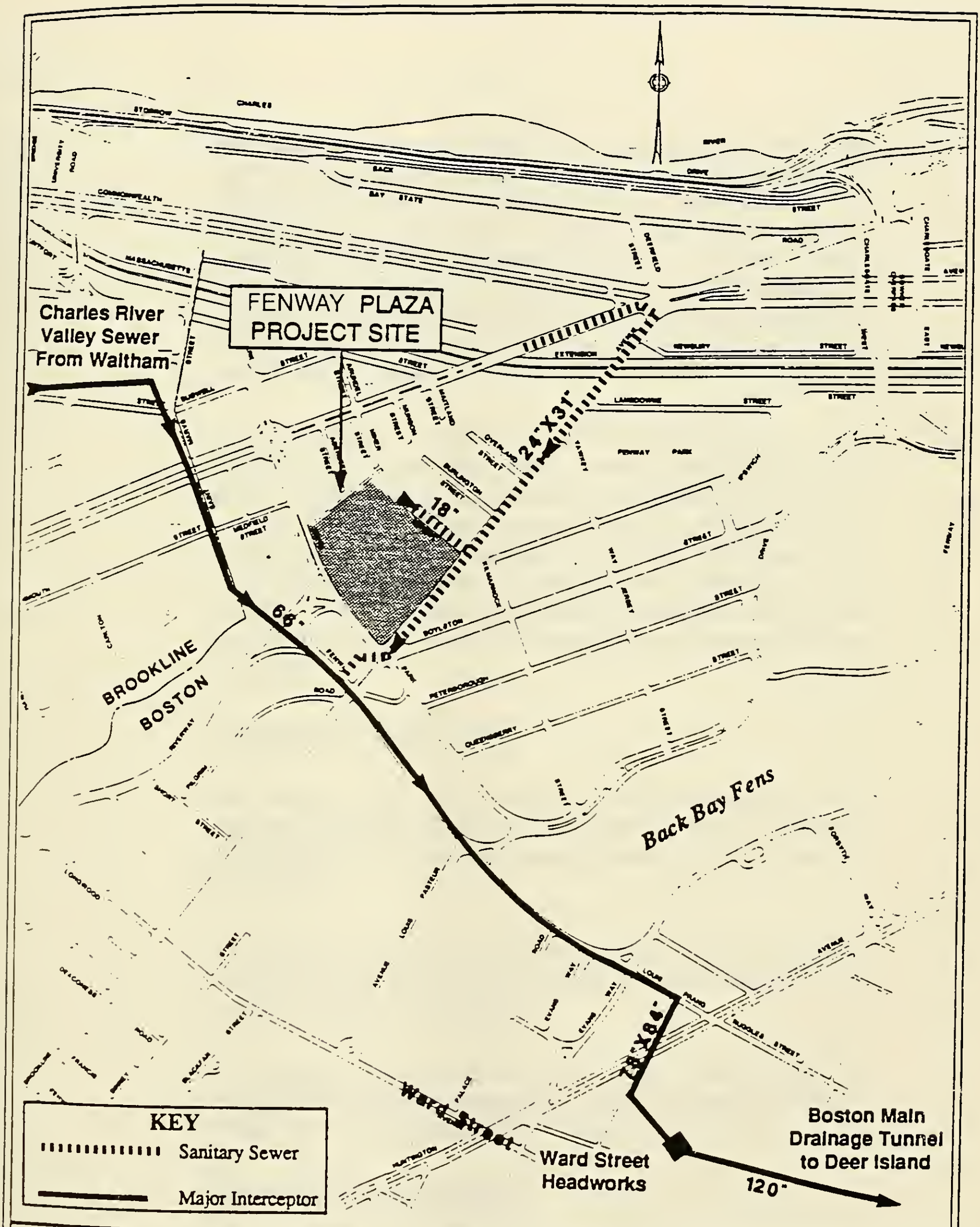

FIGURE 7.3-2
EXISTING LOCAL SEWER SYSTEM

The Sewage Division of the MWRA was consulted regarding the interceptor systems into which the Fenway area local sewers flow. The 66" CRVS, which has a peak capacity of approximately 30 million gallons per day (mgd), originates in Waltham and conveys dry weather, and some wet weather flows from communities along the Charles River through the Allston-Brighton and Fenway area to the MWRA Ward Street Headworks. The Ward Street Headworks, which has a peak capacity of 256 mgd, discharges to the Boston Main Drainage Tunnel.

The Boston Main Drainage Tunnel with a peak capacity of 438 mgd discharges to the main pumping station at Deer Island. The main pumping station has a design peak capacity of 810 mgd, while the Deer Island Plant capacity the Ward Street Headworks is sometimes throttled in conjunction with the Columbus Park Headworks. At these times excessive flows are diverted to Cottage Farm on the Charles River in Cambridge, Massachusetts. These wet weather overflows receive screening and chlorination prior to discharge.

Project Wastewater Generation

The average daily usage for the existing Sears facility was estimated at 60,000 gallons per day (GPD) for domestic sewage plus 2,250 GPD for summer cooling blowdown, for a total of 62,250 GPD.

The Olmsted Plaza project was estimated at 120,955 GPD for domestic sewage plus 22,940 GPD for summer cooling blow down, for a total of 143,895 GPD.

The proposed Fenway Plaza project (retail and parking) is estimated to use approximately 62,000 GPD for domestic sewage. There will be no summer cooling blow down.

Impacts and System Connections

The proposed Fenway Plaza project impact is far less than the Olmsted Plaza impact and marginally less than the original sewage outflows. It was previously noted in the Olmsted report that

BWSC indicated that adequate capacity exists in the Brookline Avenue sewer.

New service connections will be provided as required during the phased construction of the new buildings associated with Fenway Plaza. The construction of these connections will be incorporated into the Fenway Plaza construction schedule in order to minimize the impact on adjacent streets, and to insure that adequate facilities are available as required to service the project.

TABLE 7.3-1

EXISTING LOCAL SEWER SYSTEM CAPACITY

Segment Manhole to Manhole	Sewer Street Name	Segment size (In.)	Length (Ft.)	Scope (Ft./Ft.)	Capacity (MGD)
142-137	Brookline	24" x 31" (27)	250'	0.0008	4.8
132-90	Brookline	24" x 31" (27)	250'	0.0008	4.8
90-84	Brookline	24" x 31" (27)	240'	0.0023	8.1
84-81	Brookline	24"	85'	0.0036	7.6
81-80	Brookline	24"	195'	0.0022	5.9
80-P122	Charles River Valley	24"	25'	0.0392	25.1

TABLE 7.3-2

COMPARISON OF WASTEWATER GENERATION INFORMATION
SEWAGE GENERATION
(Based on Title V Data)

Structure	Use Category	Area (gsf)	Sewage (gpd)	Peak Cooling Blow Down (gpd)	Total Wastewater (gpd)
A. **Olmsted Plaza**					
Main Building					
	Clinical	158,540	11,890	2,375	14,265
	Office	236,208	17,725	3,550	21,275
	R & D	523,517	39,275	7,850	47,125
	Retail	60,880	3,050	935	3,985
	Day Care	10,147	1,715	75	1,790
	Athletic Club	31,708	7,925	285	8,210
	Subtotals	1,021,000	81,580	15,070	96,650
Park Drive					
	Office	216,000	16,200	3,240	19,440
Brookline Avenue					
	Office	309,000	23,175	3,240	27,805
	Totals	1,546,000	120,955	22,940	**143,895**
B. **Sears Facility**					
	Office, Retail and Warehouse Total	1,300,000	60,000	2,250	**62,250**
C. **Fenway Plaza**					
	Retail Building	450,000	54,000	-0-**	54,000
	Parking	1,130,000	8,000	-0-**	8,000
	Totals	1,580,000	62,000	-0-**	**62,000**

** Electrically Cooled System

Permitting Requirements

For new construction projects requiring connection to the sewers, an application is made for a sewer connection permit in accordance with 324 CMR 7.00. Design plans/specifications are submitted to the responsible municipal official (in this case, BWSC) who reviews and forwards the application to the Department of Environmental Protection (DEP), Division of Water Pollution Control (DWPC). The permit application must be made ninety days prior to construction of the connection.

Mitigation Measures

The MWRA and BWSC were consulted under the Olmsted study regarding project compliance with the MWRA expressed goal of reducing the inflow of stormwater and the infiltration of groundwater into the sewage collection system by a 2:1 ratio of inflow/infiltration (I/I) reduction to new sewage flow. The MWRA and its consultant indicated that Olmstead Plaza would not affect any aspects of CSO facilities.

7.3.2 Storm Drain System

Description of Existing Facilities

The existing Sears facility is serviced by a storm drainage system along Brookline Avenue known as the Muddy River Conduit. The conduit was built in the late 19th century and is owned and operated by the BWSC. Twin 72" culverts originating with an inlet structure at the downstream end of the Muddy River divert the flow of the Muddy River divert the flow of the Muddy River southeasterly beneath the site of the proposed Emerald Necklace Park to the Brookline Avenue Gatehouse, a below grade structure adjacent to the park drive intersection. An 84" X 108" conduit runs southerly from the gatehouse toward the Back Bay Fens and a 108" X 132" conduit (Muddy River Conduit) drains easterly along Brookline Avenue to Commonwealth Avenue where it runs northerly along Deerfield Street and outlets at the Charles River. The dry weather base flow of the Muddy River (4 mgd ±) normally enters the Muddy River Condiut and during wet weather overflow at the Brookline Avenue Gatehouse is directed to the Back Bay Fens.

Capacity of Existing Facilities

Technical memorandum B3-7 examined, in part, the twin 72" conduits which link the Muddy River with the Brookline Avenue Gatehouse and the Muddy River Conduit. The findings and conclusions of that memorandum implied a wet weather system capacity of approximately 170 mgd and reported base-dry weather flows of 4 mgd at 0.1 feet per second. This system was constructed in the 1880's and record drawings were not available. Information contained on the wastewater system plans maintained by the BWSC indicates that a flat slope prevails throughout the Muddy River Conduit.

The maintenance division of the BWSC was consulted under the Olmstead study regarding the operation of this system. The BWSC indicated that no flow problems have been experienced with this system, and that each of the catch basin systems tied into the Muddy River Conduit have not been known to surcharge.

Impacts and System Connections

The existing Sears facility is almost exclusively roof or paved surface. The Olmsted Plaza project footprint was roughly equal to existing, and therefore assumed no additional run off. The Fenway Plaza footprint is also roughly equal to the existing footprint and therefore, no additional run off is anticipated.

When consideration is given to the restoration by the City of the nearly two-acre "Missing Link" Parcel from parking lot to urban park, reductions in storm run off will be realized.

Storm drain service to the existing site will be provided at all times during redevelopment by either maintaining the existing service system in place, by temporary relocation or substitution of the system, or by replacement of the existing system by a new system.

System Improvements and Mitigation Measures

Fenway Plaza will provide similar mitigation measures as were proposed with Olmsted Plaza, despite Fenway Plaza's lesser impact on existing drainage systems.

It is anticipated that new catch basin locations will be required to adequately drain stormwater runoff from Fenway Plaza to the Muddy River Conduit. All new service connection construction and system modifications will be incorporated into the overall Fenway Plaza redevelopment construction schedule so that they are functional when required to carry flow in the service area of the site. Design and construction of all new storm drain facilities will be completed to BWSC standards and will be subject to its review and approval.

Parking garage drains will be discharged via oil and grit separators designed and built to MWRA standards to minimize the potential of pollutants such as oil, gasoline, grease, suspended soils, etc., from entering the storm sewer. These separators will be routinely monitored and maintained by the developer.

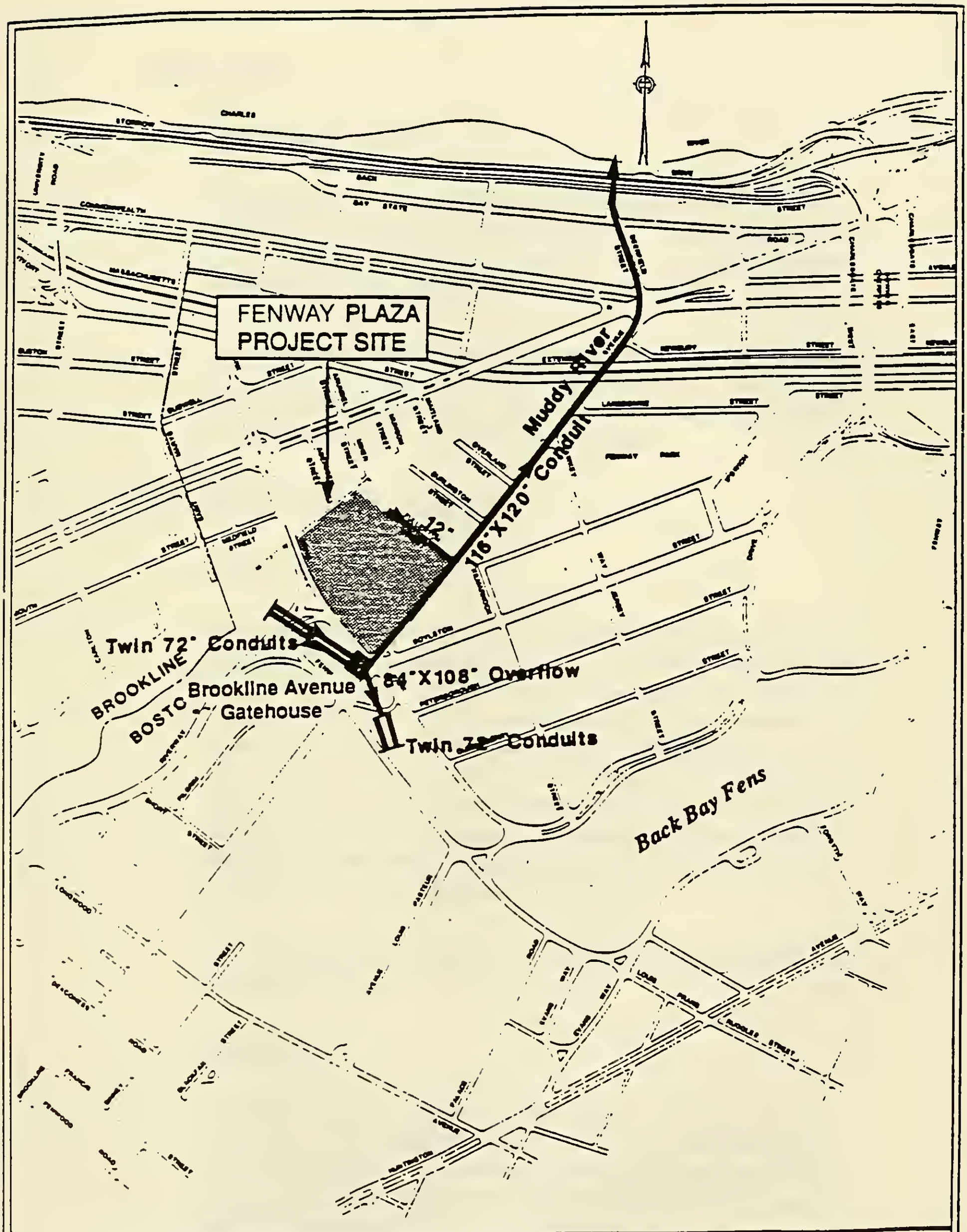

FIGURE 7.3-3
EXISTING STORM DRAINS IN PROJECT VICINITY

7.4 Energy Systems

7.4.1 Energy Use Strategies

It was anticipated that the Olmsted Plaza project would be served by three (3) 600 BHP low pressure steam boilers, fired with natural gas, for the main building. Electrically powered systems would serve the Park drive and Brookline Avenue buildings.

The proposed Fenway Plaza project retail building is to be served by gas fired rooftop units with electric cooling. The proposed parking structure lobby areas (first, second and third levels) shall be heated via electric cabinet and unit heaters.

7.4.2 Description of Existing Systems

Electric Service

The existing Sears facility is supplied with primary electric service by Boston Edison Company from their high voltage substation 329 located on Lincoln Street in Brighton. Electricity is fed from this substation through BECO's cable/conduit/manhole network in adjacent streets to the service substation 202 located on the Sears site. Two lines, 202-90 and 202-160 supply 13.8 kv electrical energy to a total of five on-site transformers which feed secondary service to the existing buildings. The existing primary service is primary metered with the building owner owning all primary equipment (except metering) and transformers.

The existing primary equipment and transformers are obsolete, and will need replacing.

Natural Gas

Low pressure gas is supplied to the Sears facility by the Boston Gas Co. A 6" service extends from Park Drive to an existing boiler plant of the facility. The existing boiler plant contained four (4) high pressure steam boilers totaling 1,529 BHP, fired by #4 and #6 fuel oil, and with ignition by natural gas pilots.

7.4.3 Capacity of Existing Facilities

Electrical Service

Numerous discussions have been held recently with Boston Edison Company in regard to providing adequate service to meet the needs of this revised project. They have indicated that there is adequate capacity in their existing substation and primary feeders to meet the needs of this project.

During discussions held with Boston Edison Company by the previous consulting engineers for the Olmsted Plaza project, it was reported that substation 329 had a rated capacity of 300 MVA, and at that time was loaded to approximately 175 MVA. The spare capacity of 125 MVA at that time would certainly meet the estimated 4 MVA of demand load for this revised project scope.

Natural Gas Service

The 6" service connection to the Sears facility from Park Drive has an estimated capacity of 4,000 cubic feet/hour.

7.4.4 Historical Energy Requirements

Since meter records were not readily available for the historical operating period of the Sears facility, efforts to develop existing/historical energy use information were based on standard estimating techniques and discussions with the facility superintendent, as reported by the Olmsted Plaza development team.

Electrical Use

Annual electric use data for the Sears facility is presented in Table 7.4-1. This data was previously reported by the consulting engineers for the Olmsted Plaza project. Included is the electricity to satisfy lighting, mechanical equipment and air conditioning requirements. It should be noted that only a small portion of the facility was provided with air conditioning.

The annual electric use for the Sears facility was estimated to be approximately 8.9 X 10^6 kwh/yr with a peak demand estimated as 4 megawatts, as reported by the previous project team.

Natural Gas Use

Natural gas did not play a major role as an energy source for the Sears Facility, since the former steam plant was fired in #4 and #6 fuel oil. Gas use was essentially limited to boiler ignition and testing of gas appliances associated with catalogue and retail sales.

TABLE 7.4-1

ANNUAL ELECTRIC USE
COMPARISON BETWEEN FENWAY PLAZA AND OLMSTED PLAZA

(KWH/YR X 10^6)

Structure	Existing Area (gsf)	Estimated Historical Electrical Use	Proposed Total Area (gsf)	Estimated Electrical Use
A. **Olmsted Plaza**				
Main Sears Building	1,299,986	8.9	----------	----------
Office	----------	----------	236,208	2.5 *
R&D	----------	----------	523,517	34.5 *
Retail	----------	----------	60,880	7.5 *
Other	----------	----------	200,395	6.1 *
Park Drive				
Office	----------	----------	227,000	4.6 *
Brookline Avenue				
300-Room Hotel	----------	----------	309,000	5.4 *
Olmsted Plaza Totals	1,299,986	8.9	1,557,000	**60.6** *
B. **Fenway Plaza**				
Retail Building	----------	----------	450,000	17.5
Parking	----------	----------	1,130,000	2.5
Fenway Plaza Totals	----------	----------	1,580,000	20.0

---

* Electric Use (From Olmsted Plaza FPIR/FEIR)
Main Building - Lights, Mechanical Equipment and A/C.
Park Drive - As for Main Building Plus Heat & Hot Water.
Brookline Avenue - As for Park drive.

TABLE 7.4-2

TOTAL ENERGY USE INVENTORY COMPARISON BETWEEN FENWAY PLAZA AND OLMSTED PLAZA

(BTU/YR X 10^9)

Structure	Existing Area (gsf)	Existing Energy Use	Proposed Area (gsf)	Proposed Energy Use
A. **Olmsted Plaza**				
Main Sears Building	1,299,986	30.4 *	1,021,000	238.5
Park Drive	----------	----------	227,000	15.7
Brookline Avenue	----------	----------	309,000	20.4
Olmsted Plaza Totals	1,299,986	30.4	1,557,000	**274.6**
B. **Fenway Plaza**				
Retail Building	----------	----------	450,000	76.26
Parking	----------	----------	1,130,000	8.55
Fenway Plaza Totals	----------	----------	1,580,000	**84.81**

---

* Includes electricity usage only.

TABLE 7.4-3

ANNUAL NATURAL GAS USE
COMPARISON BETWEEN FENWAY PLAZA AND OLMSTED PLAZA

(CF/YR 10^6)

Structure	Existing Area (gsf)	Historical Gas Use	Proposed Total Area (gsf)	Estimated Gas Use
A. **Olmsted Plaza**				
Main Sears Building	1,299,986	Not Avail.	1,021,000	65.9
Park Drive	----------	----------	227,000	----------
Brookline Avenue	----------	----------	309,000	2.0 *
Olmsted Plaza Totals	1,299,986	?	1,557,000	**67.9**
B. Fenway Plaza				
Retail Building	N/A	N/A	450,000	16.5
Parking	N/A	N/A	1,130,000	----------
Fenway Plaza Totals	N/A	N/A	1,580,000	**16.5**

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* Kitchen Use Only.

7.4.5 Proposed Project Energy Requirements

Electric Use

Fenway Plaza will utilize approximately one-third of the amount of electric energy that was estimated for the previously approved Olmsted Plaza project.

It is anticipated electricity will be utilized to satisfy all lighting, power, mechanical equipment operation, elevators, and air conditioning requirements for the parking structure and retail building.

Information relative to estimated annual electric use for Fenway Plaza is presented in Table 7.4-1. The annual electrical consumption is estimated as 20.0 X 10^6 kilowatt hours per year, with a peak load of 4.0 megawatts.

Natural Gas Use

The projected annual natural gas usage for the former Olmsted Plaza project was estimated to be 67.9 x 10^6 cubic feet per year with a peak load of 54,285 cubic feet per hour.

For the proposed Fenway Plaza project, the annual natural gas consumption is projected to be far less. The projected annual natural gas usage for the Fenway Plaza project is estimated at 16.5 x 10^6 cubic feet per year. The project space heating is via gas fired rooftop units.

7.4.6 Impacts and System Connections

Electric Service

The Fenway Plaza redevelopment will utilize electrical energy more efficiently through the use of energy efficient lighting and controls, as well as more efficient secondary distribution voltage levels. The estimated annual electric consumption for Fenway plaza is 20 x 10^6 kwh/yr as compared to 60.5 kwh/yr for the Olmsted plaza project.

Boston Edison does not presently anticipate any major modifications required to offsite substations or facilities to serve the Fenway Plaza project. It appears there will need to be a new primary duct system constructed on Fullerton Street to serve the revised project. It appears the same two primary feeders presently serving the Sears building will be rerouted and reused to serve the new Fenway Plaza project.

Electrical Communications

It is presently anticipated that a total of four (4) 4 inch conduits will be required to serve the telephone, fire alarm and cable TV needs of the project. This new ductbank will enter the project at one location. Based on preliminary investigations, the existing infrastructure is believed to be more than adequate to service the electrical communications needs of the Project. The telecommunications needs of this project will be significantly less than that of Olmsted Plaza because of its smaller size and retail use (as opposed to laboratory and office uses for Olmsted Plaza).

Natural Gas Service

The Fenway Plaza project is expected to use far less natural gas than the Olmsted Plaza project (16.5×10^6 cubic feet per year vs. 67.9×10^6 cubic feet per year).

Boston Gas is reviewing the status of their existing mains surrounding the site. It has been indicated that increased demand can be serviced with modifications to the distribution system and the sites service connection. These modifications will be the subject of ongoing discussions with Boston Gas Company and will be designed as the energy use strategy is finalized.

7.4.7 Site Improvements and Mitigation

Electric Service

New service to Fenway Plaza will be supplied by the construction of one new "radial" transformer vault to be located in the retail Building, and will, it appears, be served via the two existing 13.8 KV primary feeders rerouted to the new vault. It appears the new vault will be located near the service dock in the retail building.

The secondary utilization voltage will be 227/480 volt, three phase, four wire, 60 Hertz.

The parking structure will also be served via the new vault via a new main electric room in the parking structure.

Exact details and location of the new vault is ongoing through further coordination with Boston Edison and the development team. Location of the transformers and other vaults required for electric distribution or ventilation will be chosen to minimize disruption to pedestrian paths and all improvements.

Natural Gas Service

Based on the current energy use strategy, the existing local distribution system will require improvements such as construction of new facilities or augmented facilities within the area of the site. Boston Gas Company is reviewing the status of its existing mains surrounding the site. It is premature to identify specific gas main replacements and as such discussions with Boston Gas Company will be ongoing as the energy use strategy is finalized.

Modifications to the gas system will be incorporated into the general build out schedule of the redevelopment to minimize any adverse impacts on existing users and on adjacent travel ways. Costs of modifications to the gas system will be borne either by the developer or indirectly by the development through anticipated increases in Boston Gas revenue. In any event, impacts to the gas system will be less than those impacts associated with the Olmsted Plaza scheme.

8.0 HOUSING IMPACTS

8.0 HOUSING IMPACTS

The developers of the Project are prepared to make a full contribution of housing linkage funds as set forth in Article 26A of the Code in amounts and with a payment schedule to be determined in accordance with the provisions of Article 26A of the Code, as the same may be affected by the 121A process.

9.0 EMPLOYMENT IMPACTS

The developers of the Project are prepared to make a full contribution of jobs linkage funds as set forth in Article 26B of the Code in amounts and with a payment schedule to be determined in accordance with the provisions of Article 26B of the Code, as the same may be affected by the 121A process. In addition to these direct monetary contributions, there will be significant new job creation generated by the Project, which are discussed in Section 10 below.

10.0 PUBLIC BENEFITS

10. PUBLIC BENEFITS

Since the Trust announced its intention to undertake the Project in the fall of 1993, the development team has had extensive meetings with the BRA and other City agencies and with community groups, local business groups and other concerned citizens. The proponent believes that it has tailored a public benefits package that addresses many of the major concerns of government agencies and business and resident groups and will continue to work in a spirit of cooperation with all of these groups towards the successful completion of the development process and beyond.

10.1 Restoration of the Site

Perhaps the most significant public benefit of the Project is the rehabilitation of a presently deteriorating local, state and federal landmark to active use. The proposed retail facilities will restore the historic use of the Site and will serve primarily the residents of the neighborhoods surrounding the Site. The Site itself will be improved through the elimination of the unsightly warehouse additions, addition of interior and outdoor pedestrian walkways, enhancement of existing landscaping, and the Site's general integration into the surrounding communities. Pedestrian safety will be improved by undertaking several important pedestrian mitigation measures and improvements relating to the Site generally and non-Site pedestrian flows to and from the MBTA Station in particular.

10.2 Emerald Necklace

The proponent will cause the return of the so-called Missing Link Parcel directly to the City or its nominee for restoration by the City as park land. It is estimated that this parcel is worth $2,000,000. The proponent will work hand in hand with City and State agencies to attempt to locate and secure sources of financing for the restoration of the park. For example, the proponent will work with the City to secure potential funds set aside by the State for the restoration of Olmsted Parks funds dedicated to the Massachusetts Urban Self-Help Program and from other possible sources.

10.3 Housing

As specified in Section 8.0, the proponent is prepared to pay the housing linkage funds specified by the Code, as the same requirements may be affected by the 121A process.

10.4 Jobs

The Project will provide up to 1,200 new construction jobs and 1,000 new permanent jobs. The permanent jobs will be especially attractive to neighborhood residents. The employment opportunities generated by the Project will be especially attractive to the many people from the neighborhoods surrounding the Site looking for part-time or flexible - hour work.

10.5 Traffic and Parking

The proponent is prepared to undertake extensive traffic mitigation identified in this report. The Trust will also contribute $25,000 towards the area-wide transportation study being undertaken by the BTD. Sufficient parking will be provided for the retail facility to fully meet its own parking needs. Various measures are proposed both on-and off-site to improve pedestrian circulation. Use of the Fenway Park T-stop will be encouraged by providing a new entrance to the T-stop from the Site, remodeling or replacement of the stairs from Park Drive to the Station and provision of new walkways (either internal or covered) from various points in the Site to the T station. Three new bus shelters will be provided to encourage bus use.

APPENDIX 1.2

FENWAY PLAZA
DEVELOPER AND CONSULTANT LIST

Appendix 1.2
FENWAY PLAZA
Developer and Consultant List
2 May 1994

DEVELOPER	New England Development One Wells Avenue Newton, MA 02159 Joseph Fallon	617/965-8700 FAX 617/243-7085
ARCHITECT	Arrowstreet Inc. 212 Elm Street Somerville, MA 02144 Robert Slattery Brad Edgerly George Tremblay Rob Holt	617/623-5555 FAX 617/625-4646
LEGAL	Goulston & Storrs 400 Atlantic Avenue Boston, MA 02210 Michael J. Haroz Steven Schwartz	617/482-1776 FAX 617/574-4112
CONSTRUCTION MANAGER	Beaver Builders, Inc. One Wells Avenue Newton, MA 02159 Lenny Rudofsky Tom McCafferty Neil MacKenzie	617/965-9600 FAX 617/965-6984
SURVEY	Cullinan Engineering Company 145 South Street Boston, MA 02111 Richard D. Raskin	617/423-0817 FAX 617/423-3912
CIVIL ENGINEER	Anderson-Nichols & Company, Inc. Park Square Building 31 Saint James Avenue Boston, MA 02116 Arthur Towne Herrick Spicer	617/695-3400 FAX 617/695-3310

Appendix 1.2
FENWAY PLAZA
Developer and Consultant List
2 May 1994

GEOTECHNICAL	GZA GeoEnvironmental, Inc.	
	The GEO Building	
	320 Needham Street	617/969-0050
	Newton Upper Falls, MA 02164	FAX 617/965-7769
	Rick Simon	
	Markus Walbaum	617/630-6387
	Peter Baril	
STRUCTURAL	Weidlinger Associates	
	44 Brattle Street	617/876-9666
	Cambridge, MA 02138	FAX 617/864-1582
	Dieter Risch	
	Peter Wheelock	
MECHANICAL/ PLUMBING/ FIRE PROTECTION/	TMP Consulting Engineers Inc.	
	52 Temple Place	617/357-6060
	Boston, MA 02111	FAX 617/357-5188
	Richard Noce	
	Roger Wardwell	
ELECTRICAL	Johnson & Stover, Inc.	
	1256 Park Street	617/341-6060
	Stoughton, MA 02072	FAX 617/341-6063
	Jim Stover, President	
	Mike Lema	
TRAFFIC	Abend Associates	
	304 Concord Road	508/358-7095
	Wayland, MA 01778	FAX 508/358-5280
	Norm Abend	
	Abend Associates	
	265 Winn Street	617/273-5383
	Burlington, MA 01803	617/273-3053
	Mike Abend	

Appendix 1.2
FENWAY PLAZA
Developer and Consultant List
2 May 1994

HISTORICAL CONSULTANT	Leslie Larson 6 Joy Street Boston, MA 02108	617/723-3315
CODE CONSULTANTS	Wayne Welke 30 Chester Street Somerville, MA 02144	617/776-3871
	J.P. Prosser & Associates Inc. 65 Broad Street Boston, MA 02109	617/357-8110 FAX 617/357-7410
	John Prosser	

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APPENDIX 1.8

FENWAY PLAZA PERMITS AND APPROVALS

Appendix 1.8

PERMITS AND APPROVALS

	Agency Name	Permits
	Local Permits	
1.	Boston Redevelopment Authority	121A Agreement
2.	Boston Landmarks Commission	Boston Landmarks Approval
3.	Boston Redevelopment Authority	Environmental Review (Article 31)
4.	Boston Civic Design Commission	Design recommendation
5.	Public Safety Commission	Parking Structure/Inflammables License
6.	Boston Conservation Commission	Order of Conditions (Floodplain)
7.	Parks and Recreation Department	Possible Appeal for Construction within 100 feet of park land.
8.	Boston Transportation Department	Transportation Access Plan
9.	Inspectional Services Department	Demolition and Building Permits, Certificate of Occupancy
	State Permits	
10.	DEP/Division of Water Pollution Control	Sewer Connection Permit
11.	Massachusetts Historical Commission	Acceptance of Effects of Project on Historic Structure
12.	Executive Office of Transportation and Construction	Approval of Issuance of Building Permit
13.	DEP/Division of Air Quality Control (DAQC)	Notice of Demolition
14.	DEP (DAQC)	Possible Fossil Fuel Utilization Facility Permit
15.	Metropolitan District Commission	Possible Permit to Modify Curb Cuts
16.	DEP	Necessary Approvals of Oil/Hazardous Materials Remediation

Federal Permits

17.	Environmental Protection Agency	NPDES Construction Permit
18.	Department of the Interior/ National Park Service	IRC Section 48 Tax Credit Approval

APPENDIX 1.9

FENWAY PLAZA
ABUTTERS LIST TO FENWAY PLAZA

APPENDIX 1.9

Abutters List to Fenway Plaza

Names and addresses of owners of and abutters to the Site according to the most recent City of Boston tax list maintained by the Assessing Department, and other parties who may be substantially affected by the Project.

I. For the Fenway Plaza Site

(i) The owner of the Fenway Plaza Site is:

155-201 Brookline Avenue a/k/a
201 Brookline Avenue
Ward 21, Parcel 77
Owner: Sears Roebuck & Co.
Mailing Address: c/o 970 Department
Sears Tower, BSC 41-38
Chicago, IL 60684

(ii) The owners of land which abuts the Fenway Plaza Site, or is across a public or private street or way from the Olmsted Plaza Site are:

Brookline Avenue/Riverway St./Park Dr.
Wd. 4, parcel 1994-1
Owner: Sears Roebuck Co.
Sears Tower
Chicago, IL

Riverway St.
Wd. 4, Parcel 1994-2
Owner: Commonwealth of Massachusetts

1390 Boylston Street
Ward 21, Parcel 46
Owner: Exxon Corporation
Mailing Address: Box 53
Houston, Texas 77001

1371 Boylston St./170 Brookline Ave.
Wd. 21, Parcel 53
Owner: Nimrod Press Inc.
1369 Boylston St.
Boston, MA 02215

200 Brookline Avenue
Ward 21, Parcel 54
Owner: Grinnell St. Associates Inc.
31 Pratt Street
Hartford, CT

192 Brookline Avenue
Ward 21, Parcel 55
Owner: Grinnell St. Associates Inc.
31 Pratt Street
Hartford, CT

176 Brookline Avenue
Ward 21, Parcel 56
Owner: Neil Gordon, Tr.
176 Brookline Avenue
Boston, MA 02115

162 Brookline Avenue
Wd. 21, Parcel 57
Owner: Richard A. Draper
162 Brookline Avenue
Boston, MA 02215

140 Brookline Avenue
Wd. 21, Parcel 58
Owner: Charles G. Krattenmaker Jr.
140 Brookline Avenue
Boston, MA 02215

148 Brookline Avenue/Kilmarnock St.
Wd. 21, Parcel 59
Owner: Charles G. Krattenmaker Jr.
140 Brookline Avenue
Boston, MA 02215

NO PROPERTY LISTING
CONRAIL
Legal Department
Attn: Bruce B. Silson
1842 Six Penn Center
Philadelphia, PA 19103

NO PROPERTY LISTING
Massachusetts Turnpike Authority
10 Park Plaza
Boston, MA 02116

Burlington Avenue
Wd. 21, Parcel 73-1
Owner: City of Boston

Brookline Ave./Park Drvie
Wd. 21, Parcel 77-1
Owner: Commonwealth of Massachusetts MDC

40 Burlington Ave./2 Fenway Pz/Fullerton St.
Wd. 21, Parcel 74 (Exempt)
Owner: Harvard Community Health
c/o Theodore Skaliotis
20 Overland Street
Boston, MA 02215

40 Burlington Ave.
Wd. 21, Parcel 74-1
Owner: Harvard Community Health
c/o Theodore Skaliotis
20 Overland Street
Boston, MA 02215

Munson Street (to end)
Ward 21, Parcel 171-1
Owner: Mass. Bay Transportation Authority
Legal Department
10 Park Plaza
Boston, MA 02116

Munson Street
Wd. 21, Parcel 172-1
Owner: Children's Medical Center Corp
c/o Colleen O'Loughlin
1295 Boylston St. #300
Boston, MA 02215

Brookline Avenue
Olmsted Park Parcel
Ward 21, Parcel 1994
Owner: Sears Roebuck & Co.
c/o Tax Department
Sears Tower
Chicago, IL 60684

122-130 Brookline Avenue
Ward 05, Parcel 4327
Ward 05, Parcel 4328
Owner: Infort Inc.
162 Brookline Avenue
Boston, MA 02115

136 Brookline Avenue
Ward 05, Parcel 4327-1
Owner: Theodore Wasserman
115 Dean Road
Brookline, MA 02146

FENWAY COMMUNITY GROUPS

ORGANIZATION	CONTACT NAME & ADDRESS	TELEPHONE #
Boston-Fenway Program,Inc	James Lydon Executive Director Boston Fenway Program, Inc. 236 Huntington Avenue Boston, MA 02115	445.0040
KAFNI - Kenmore Audubon Fenway Neighborhood Initiative	Maura Zlody KAFNI P. O. Box 127 Astor Station, Boston, MA 02123	635.4258
MASCO	Mr. Richard M. Shea, Jr. Vice President Area Planning & Devel. Medical Area Serv. Corp. 333 Longwood Avenue Boston, MA 02115	732.2310
Massachusetts Historical Commission	Allen Johnson Preservation Planner Mass. Historical Comm. 80 Boylston Street Boston, MA 02116	727.8470
Audubon Circle Neighborhood Association	Darryl Gately Audubon Circle Neighborhood Association 25 Aberdeen Street Boston, MA 02215	437.6233
Boston Preservation Alliance	Susan Park 45 School Street Boston, MA 02115	367.2458
Fenway Community Business Association	Marty Thornton 100 Peterborough St. Boston, MA 02215	421.0104
Fenway Community Development Corp.	Barbara Burnham 75 Hemenway St. Boston, MA 02115	267.4637
Fenway Civic Assoc.	Susan Strelec 111 Queensberry Street Boston, MA 02215	266.9638

Kenmore Association	Pam Beale P.O. Box 644 Kenmore Station, MA 02215	262.3749
Society for the Preservation of Audubon Circle	Fredericka Veikley 231 Park Drive, # 31 Boston, MA 02215	735.2651
The Carpenters Union	Local #33 10 Dry Dock Ave. Boston, MA	350.0014
The Boston Building Trades	12A Everdean St. Boston, MA 02122	
Fenway Community Health Center	Harry Collings 7 Haviland St. Boston, MA 02115	267.0900 X 206

APPENDIX 4.0

ENVIRONMENTAL IMPACTS
OLMSTED PLAZA EXCERPTS

4.1.1 The Nature of Urban Winds

The winds that circulate over the earth's surface are affected by their interactions with the physical elements at and near ground level. Winds are deflected and modified by contact with trees, buildings and the wide range of natural features that together contribute to the phenomenon labeled "surface roughness" by atmospheric scientists and wind engineers. The friction caused by the interaction of the winds with surface features creates an atmospheric boundary layer that extends up from the street or ground level to a theoretical elevation called the "gradient height." This is the height at which micro-level wind patterns cease to be affected by surface friction. The gradient height may vary, but it is typically 900-1,350 feet above ground level. Wind speeds generally increase with elevation within the boundary layer, reflecting the decreasing effects of surface friction with height. Above the gradient height, wind speed is relatively constant and unaffected by surface development.

In urban environments there is potential to modify the wind patterns within the boundary layer by changing the surface characteristics. This is most commonly done by constructing new, large-scale, high-rise buildings. The introduction of tall new buildings may increase pedestrian level winds in three general ways.

1. Vertical Deflection of Upper Level Winds - A tall building may extend from ground level, where wind speeds are generally low, well up into the boundary layer where winds may be expected to be higher. As upper level winds approach perpendicular to the vertical facades of high-rise buildings, pressure gradients are created. Higher pressure is generated by the high velocity winds nearer the gradient height, while lower pressures exist near ground level. The resultant pressure gradient deflects the higher velocity upper level winds vertically down the face of the building toward pedestrian level.

   The potential for creating this type of vertical deflection of upper level winds is most pronounced in areas where a tall building, usually on of 300 feet or more in height, is introduced to an area in which it is surrounded by shorter structures. The types of flow patterns associated with vertical deflection are graphically depicted in figure 4.1-1. As noted in the figure, increased pedestrian level winds are likely at the base of the building, and at its corners.

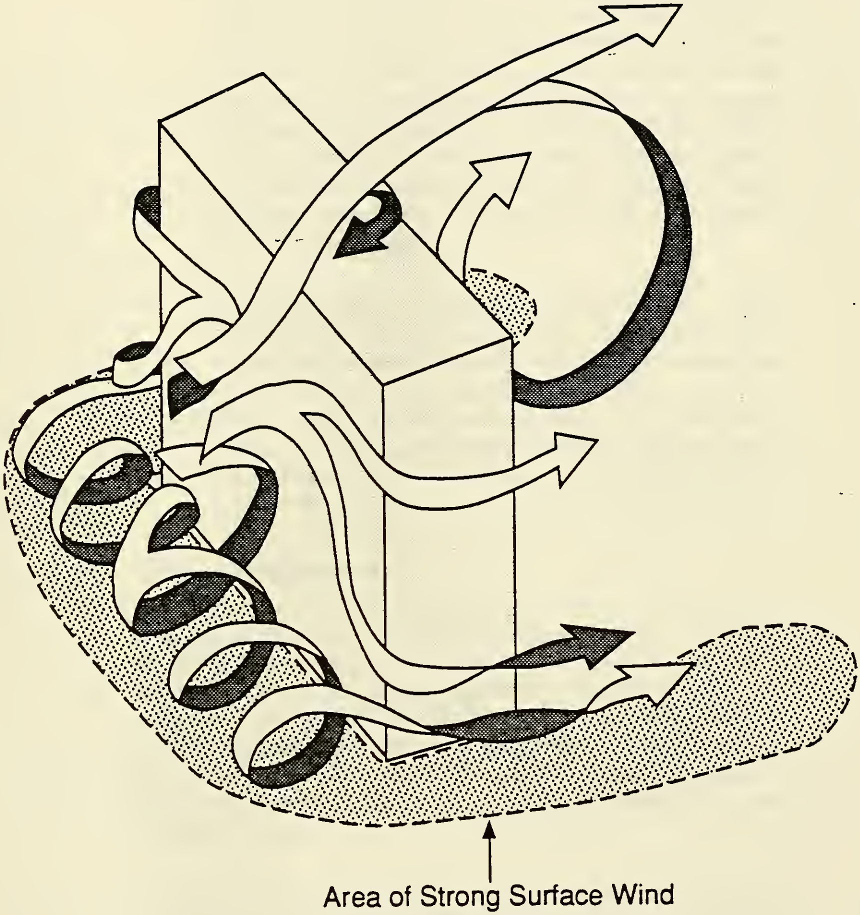

FIGURE 4.1-1
WIND FLOW AROUND A BUILDING

2. Channeling of Air Flows - In high-density cities, new development can create "urban street canyons." The street canyons can channelize the flow of boundary layer winds along streets and sidewalks. The narrower cross-section created by this type of development may cause a Venturi effect in which winds are focused to accelerate as they pass through the narrower opening. This causes not only increased wind speeds within the channel, but increases turbulence at the corners to the channels. While in some cities very dense CBD areas may exhibit this characteristic, it is likely that potential for this type of pedestrian impact exists only in the Financial District of Boston at this point in the City's development.

3. Induced Turbulence - As wind flows perpendicular to urban street canyons or high-rise facades, turbulence may be created with resultant vortex formations on the leeward side of the structure. This causes swirling wind in a vertical plane, roughly parallel to the direction of the prevailing winds. It is this type of wind phenomenon that creates the nuisance winds that lift hats and litter up from ground level in the street canyons.

4.1.2 Wind Impact Regulations

The Commonwealth of Massachusetts has no structured means for requiring wind studies, or for regulating wind speeds. Through its MEPA Process it may require wind studies if there appears to be potential for wind impacts. Such a decision is based upon the general geometric characteristics of the proposed development (i.e., is it a high-rise development, are street canyons created?), and upon the level of public concern as expressed through the public comment process.

The BRA has a slightly more structured approach. Article 31 contains screening criteria to help determine whether wind studies should be considered. These criteria suggest that wind tunnel tests may be required for new projects of over 150 feet in height, or for projects where new construction is at least twice as tall as any adjacent building. Presumably, the former criterion is designed to identify buildings with either vertical deflection or urban street canyon channeling potential; the latter is intended to consider vertical deflection and induced turbulence potential.

4.8 Noise

4.8.1 Introduction

Noise is often defined as unwanted sound. Sound, in turn, is defined as pressure fluctuations in the air to which the ear is sensitive. A sound's amplitude, its temporal character and frequency content, and its longer-term variations all contribute to how the sound is perceived.

The "acoustical environment" of an area is established by all the sounds, both natural and man-made, that are audible in the area. The acoustical environment in urban locations (exemplified by the project site and its surrounding area) typically consists of fairly steady "background" sounds from sources like distant traffic and mechanical systems. Sounds from individual noise sources, such as passing vehicles, sirens, and aircraft overflights occasionally intrude above the background noise.

The amplitude, or "level", of a sound is expressed in terms of decibels (dB). Often, "A-weighting" is used to more completely describe how the human ear responds to both the amplitude and frequency content of the sound. Generally, people are more sensitive to sounds in the middle-to-upper frequencies than they are to either very low- or very high-frequency sounds. Thus, a mid-frequency sound may be perceived as "louder" than a low-frequency sound with equal acoustical energy. A-weighted sound levels (expressed in "dBA") take this into account; the low-frequency sound would have a lower dBA value than the mid-frequency one.

The term "ambient sound level" is used to describe the amplitude of all the sound present at any given time. Fluctuations in ambient sound levels are often described statistically. Measurements are made of the ambient sound levels at a given location, and the variations are quantified in terms of percentages of time that certain levels are exceeded. These percentages are then expressed in terms of "L_n" levels. For most environmental impact assessment work the most common L_n values are:

L_{90} the level exceeded 90 percent of the time, commonly used to describe the lowest, residual, or background noise level, below which ambient levels rarely fall;

L_{50} the level exceeded 50 percent of the time, commonly used to describe the "average" ambient sound level; and

L_{10} the level exceeded 10 percent of the time, often used to describe "near-peak", common maximum, or intrusive sound levels, and commonly used to describe levels of traffic noise.

In addition, the "energy equivalent" level (L_{eq}) is often used to describe ambient sound levels. The L_{eq} level is the sound level that would need to be produced by a steady, unvarying sound source to generate the same amount of acoustical energy, over some defined time period, as was generated by the time-varying ambient sounds.

In general, the existing acoustical environment of an area plays a large part in determining the potential for noise impacts from any noise-producing project. In quiet areas, there is typically a higher potential for a new noise source to be judged "intrusive", and possibly have more adverse noise impacts, than in noisier areas. Thus, a major part of the noise impact assessment for a new project is the evaluation of the existing ambient conditions. In addition, the noise impact assessment must include an evaluation of potential adverse physiological and psychological effects of the project's noise emissions. Finally, the assessment must include an appraisal of whether the project will comply with applicable federal, state, and local noise control requirements and guidelines.

4.8.2 Existing Conditions

To characterize the existing acoustical environment in the project area, and to establish the necessary baseline data for the noise impact assessment, an ambient noise survey was conducted in the vicinity of the Olmsted Plaza site. The primary intent of the survey was to collect ambient noise level data at a number of representative locations around the site, both during the daytime and at night, to develop a quantitative description of the existing ambient noise levels.

Description of the Area

The area around the proposed Olmsted Plaza project consists of a fairly unique blend of residential, commercial, and medical land use. Streets in the area are relatively busy, and the MBTA Riverside Line runs along one edge of the site. Across the MBTA tracks, west and southwest of the site, lies a small enclave of two- and three-story brick apartment buildings. A block further to the west runs Beacon Street, a major thoroughfare. Park Drive, another major artery, runs along the southwestern edge of the site, cutting through the residential neighborhood to the west. Park Drive, Brookline Avenue, Boylston Street, the Riverway, and the Fenway all converge just south of the site. Further south is Emmanuel College and the Medical Area, one of the highest concentrations of hospital and medical facilities in the country. Two-story commercial property abuts the site to the east, beyond which lies another residential neighborhood. A Harvard Community Health Plan out-patient and ambulatory care facility abuts the site to the north.

APPENDIX 5.0

URBAN DESIGN COMPONENT
OLMSTED PLAZA DEIR EXCERPTS
PREVIOUSLY APPROVED

5.0 URBAN DESIGN COMPONENT: OLMSTED PLAZA DEIR

The previously approved Olmsted Plaza project describes the existing context and neighborhoods. This analysis is still current and is incorporated into Fenway Plaza's Urban Design considerations.

5.2 Surrounding Context

The project site is described, in some detail, in Section 2.2 of this report. From a design standpoint, the site is significant since it occupies a key location linking several of Boston's neighborhoods and districts. Immediately to the north and east is the Fenway Park district, which, in turn, adjoins Kenmore Square across the Massachusetts Turnpike. To the south, the site connects to Boston's "Emerald Necklace" park system via the "Missing Link" parcel. Across the Boston and Albany/MBTA tracks to the northwest is Audubon Circle on the Brookline town line. East of the site is the West Fens neighborhood, and southwest across the Emerald Necklace is the Longwood Medical Area. Figure 2.2-3 shows the site and its strategic location at the crossroads of these various neighborhoods.

Fenway Park

The Fenway Park district is comprised of a mixture of nondescript commercial and light industrial buildings interspersed with parking lots and storage warehouses and dominated by the Fenway Park baseball stadium. The district is bounded by Boylston Street to the southeast, Park Drive to the southwest, the Boston and Albany tracks to the northwest and the Massachusetts Turnpike to the north. In recent years, the area has shown potential for revitalization along Brookline Avenue and Landsdowne Street with the opening of several restaurants, nightclubs, and other commercial ventures.

West Fens

The West Fens neighborhood comprises a nine block area east of the project site, bounded by the Back Bay Fens segment of the Emerald Necklace to the south and east, and separated from the Fenway Park district by Boylston Street to the northwest. This neighborhood forms a tightly knit residential enclave of early twentieth century apartment buildings, 4-6 stories in height, of mixed brick and masonry construction. The near uniformity in scale, style and height, however, breaks down along Boylston Street, where random commercial development has been allowed to intrude.

Kenmore Square

Three of Boston's major traffic arteries (Beacon Street, Commonwealth Avenue, and Brookline Avenue) converge at Kenmore Square, one of the city's busiest commercial centers. Over 125 businesses serve a largely transient population of college students from nearby Boston University, commuters from the seven MBTA bus routes and three MBTA Green Line routes served by the Kenmore "T" Station, and patrons of sports events at Fenway Park.

Emerald Necklace

The Emerald Necklace is the name by which the interconnected series of parks, riverways and green space surrounding the inner city of Boston is known. Occasionally interrupted by recent intrusions such as the existing parking lot on the "Missing Link" parcel, the park system still retains a remarkable degree of continuity along its length and is intensively used for both active and passive forms of recreation.

Audubon Circle

The Audubon Circle neighborhood is located northwest of the project site and is separated from it by the tracks of the Riverside Branch of the MBTA Green Line. It is characterized by a well-integrated mix of apartment housing and retail uses centered on the crossing of Beacon Street and Park Drive at Audubon Circle. The neighborhood is served by the Riverside and the Cleveland Circle branches of the Green Line (see Section 3.11, Public Transportation) and is further geographically defined by the Massachusetts Turnpike to the north, and the Brookline town line to the west.

Longwood Medical Area

South of the project site, the Longwood Medical Area covers some 175 acres, housing over 25 medical, cultural, and educational institutions, among which are the Harvard Medical School, Brigham and Women's Hospital, Children's Hospital, New England Deaconess Hospital, and the Joslin Clinic. Most of this area has been recently built over on an institutional scale with buildings of little architectural interest, notable exceptions being the Harvard Medical School campus and the buildings of the Southwest Fenway Landmark District.

5.3 Existing Conditions on the Site

The main project site is presently occupied by the former Sears Catalog and Surplus Sales Facility. The Site Location Map in Figure 5.3-1 shows the proposed location of the buildings on the site. The site has its main frontage on both Park Drive and Brookline Avenue and may also be accessed from Fullerton Street. Fenway Park Station of the MBTA Green Line is located on the western most corner of the site. Abandoned railroad spurs connect to the tracks of the Boston and Albany Railroad which border the site to the northwest.

The only existing building on the site is the main Sears Building, an eight story concrete and steel framed masonry structure with a 200 foot high central tower, built between 1928 and 1931. Later three story additions to the northern and eastern sides of the building occupy the rear-most portions of the site. The later additions to the Sears building were added to provide loading docks and expanded industrial service capability to the main building....

The main building is set back 100 feet from the property line along Park Drive and is easily the most prominent feature of the surrounding neighborhood. Its rectangular mass is anchored by the dominant central tower which rises from the main building entrance, stepping back above the roof line in characteristic Art Deco fashion. Projecting panels carried slightly above the roof line on either side and on each end of the building echo the vertically organized fenestration of the tower and relieve the horizontally of the facade. Surface decoration is restrained, consisting mainly of limestone relief carvings and decorative brick work, with alternating horizontal bands of buff brick and limestone balanced against vertically recessed window panels set between projecting masonry piers. Ground floor display windows are presently bricked up and entrances sealed off. The aerial photo in Figure 2.3-1 shows the site and the Sears Building in its present state.

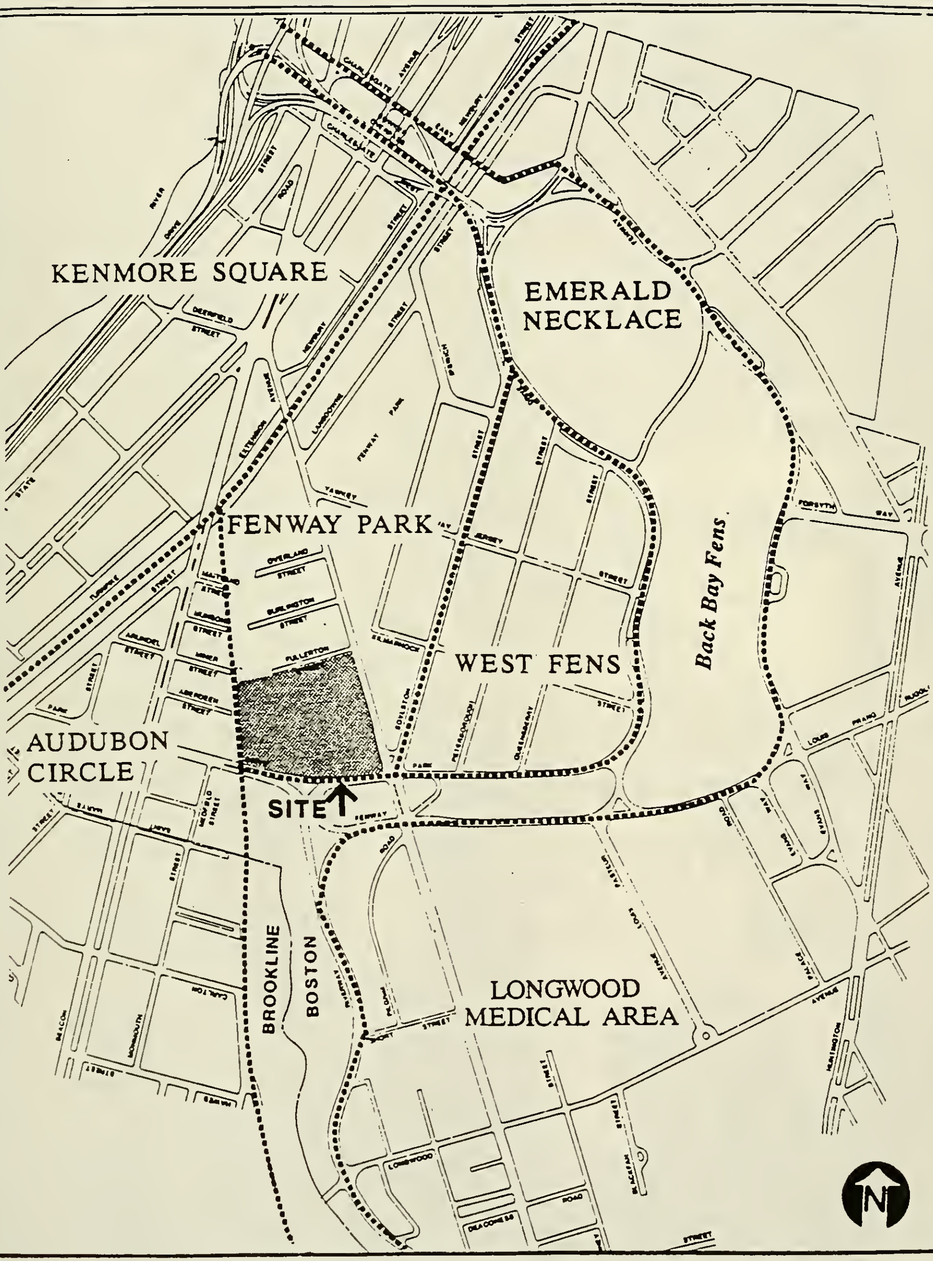

FIGURE 2.2-3
NEIGHBORHOOD MAP

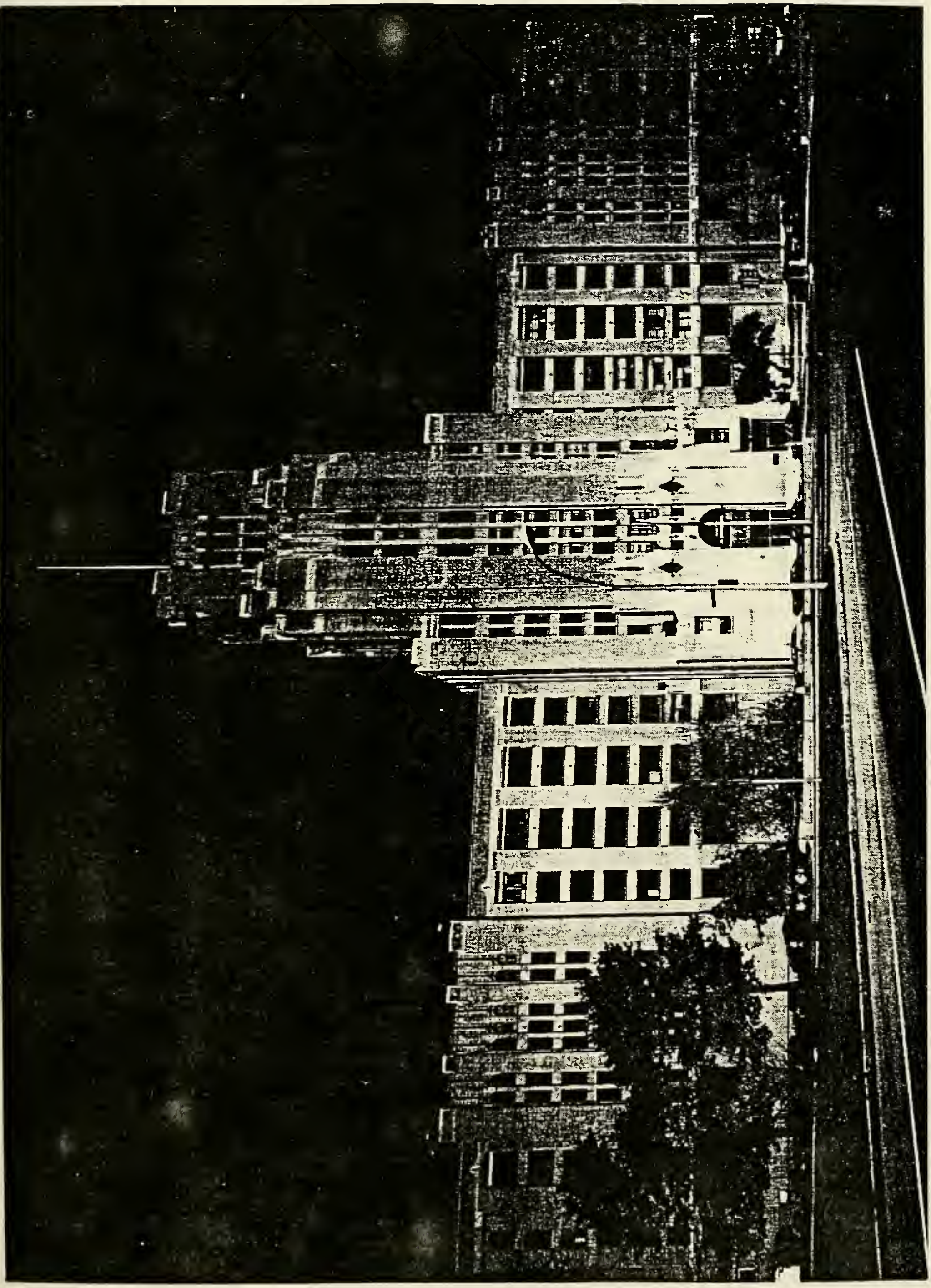

FIGURE 2.3-1: BUILDING FACADE

APPENDIX 6.0

HISTORIC RESOURCES COMPONENT OLMSTED PLAZA DEIR EXCERPTS

(Previously Approved)

6.0 HISTORIC RESOURCES COMPONENT: OLMSTED PLAZA DEIR

The following are analyses of the approved Olmsted Plaza DEIR/DPIR.

> ....The analysis presented here includes the above sites, as well as an additional four sites associated with, or recommended for inclusion within the Fenway Study Area. The evaluation was conducted using the resources of the Boston Landmarks Commission (BLC), which included BLC building information forms for locally significant buildings, nomination forms for the National Register of Historic Places Inventory, and various other BLC survey materials.
>
> As required in the Scoping Determination historic districts for analysis include the Emerald Necklace, the Audubon Circle District, the Fenway District, the Park Drive District, The Southwest Fenway District and the Bay State Road District. The Scoping Determination has also identified the Citgo Sign, the Robert Treat Paine Jr. House, the Church of the Disciples, the main building of Simmons College and the main building of Emmanuel College for analysis as structures of historic interest. In addition, the Harvard Medical School Landmark District, the St. Stephens/Symphony Road Architectural Conservation District, the St. Germain Street Architectural Conservation District, and the Symphony Hall National Historic Landmarks have been included since they lie within, or are associated with, the Fenway Study Area. Of the above, the Bay State Road District, is listed in both the National and State Registers of Historic Places. Historic districts and structures and their locations are indicated in Figure 6.1-1. Since the Scoping Determination requires information as to how the proposed Emerald Necklace Park related to the original plans as drawn by Olmsted, the Emerald Necklace analysis will be treated separately from those of the other historic districts.

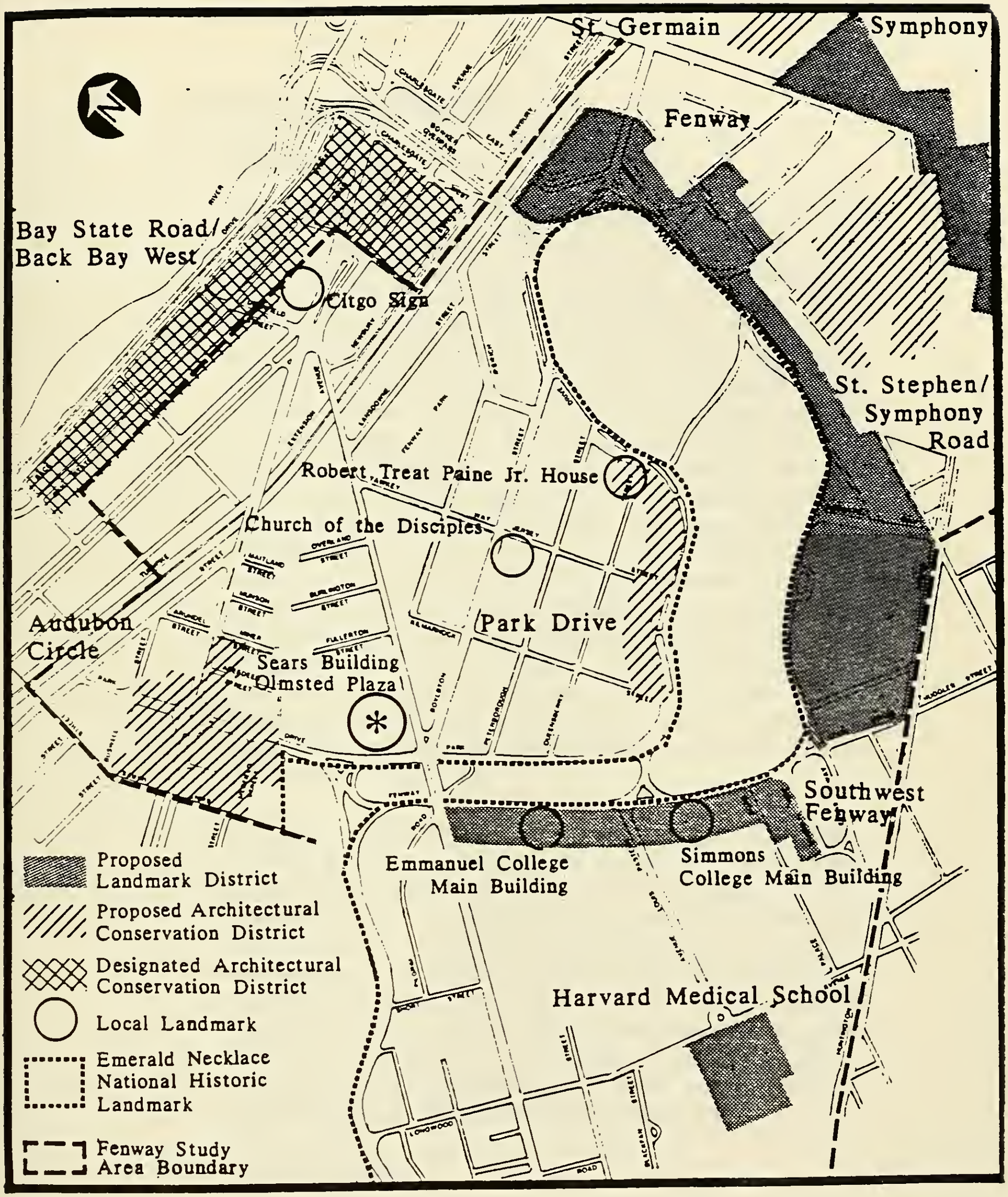

FIGURE 6.1-1
HISTORIC RESOURCES

6.2 Historic Resources in the Project Area

6.2.1 Sears Building

The main Sears Building was built in stages between 1928 and 1931 as a regional mail-order distribution center. Designed by the Chicago firm of Nimmons, Carr and Wright, the building is a relatively rare Boston example of art deco "modern design" and is the most highly visible landmark in the West Fens. Built of buff brick and Indiana limestone with decorative features inspired by the work of noted architect Louis Sullivan, the Sears building represents an example of what was at the time a recent building type, the mail order house. The 200 foot high central tower held water tanks for the building's sprinkler system and stood out as a prominent signature piece, both for the Sears Roebuck corporation and for the Fenway neighborhood itself. At the base of this tower, on Audubon Road (Park Drive), was the main entrance to the building, behind which the large retail store occupied over half of the building's ground floor area. Shipping, receiving and parcel post facilities at the rear of the building connected with the tracks of the Boston and Albany Railroad. To soften the impact of its great size, the building was set back 100 feet from the line of Audubon Road and the site heavily planted with trees, shrubs and flower beds to complement and extend the nearby park lands of Olmsted's Emerald Necklace.

Over time, the merchandise distribution function of the building expanded to such an extent that by the mid-1950s it had displaced the once active retail store, resulting in the blocking up of the ground floor display windows and the closing off of the building's formal entrances. Warehouse additions built in 1949 and 1966 to house additional storage space, and a post office and loading dock facilities for 76 trucks now hide much of the original northeast facade of the building. Finally, the once attractive landscaping has given way to pavement for on site parking and delivery access. Fortunately, the original building, while altered and obscured, has suffered little by demolition, and remains largely intact.

6.2.2 Emerald Necklace

The Emerald Necklace park system traces its beginning back to one of the nation's earliest regional planning endeavors. Legislation enacted in 1872 by the General Court empowered the City of Boston to divert the course of the Muddy River from the Back Bay directly into the Charles River via an underground conduit. This provided an opportunity not only to mitigate the backup of foul swamp water from the Back Bay Fens into the meadows of Roxbury and Brookline, but also to undertake a far-reaching program of land management and park development. In April 1875, the Boston Park Commission was forced with the twofold responsibility of developing a city-wide park system and implementing measures to drain the Fens. After reviewing a number of plans to achieve these objectives, the Parks Commission, in 1878, approached the renowned landscape architect Frederick Law Olmsted to prepare designs for the new system.

Olmsted was at once able to combine the solutions to a number of different problems into a single comprehensive plan. To alleviate the problem of sudden flooding of the Muddy River and Stony Brook watercourses, the Back Bay Fens were developed as a managed saltwater marsh to contain and absorb the occasional overflows. To reduce the amount of tidal backup of marsh water from the Fens, tide gates were built to control the entry of water from the Charles. To eliminate the flow of raw sewage into the Fens, an interceptor line was built to channel off effluent and excess runoff from Stony Brook. These measures enabled the Fens to be incorporated into the park system which Olmsted had begun at the Boston Public Garden and later extended up the course of the Muddy River to Jamaica Park, the Arnold Arboretum and Franklin Park. Joined by tree-lined boulevards, the parks of the "Emerald Necklace" not only provided pleasant settings for a variety of forms of recreation and relaxation, but also served to link the newly annexed communities of Roxbury and West Roxbury with the center of Boston. The original extent of the Emerald Necklace is shown in Figure 6.2-1.

The Emerald Necklace has suffered much from neglect, poor maintenance and insensitive planning, particularly in recent years. The Muddy River Segment, Figure 6.2-2, which directly adjoins the Olmsted Plaza project site, clearly illustrates this. Acquired in various land takings and purchases between 1882 and 1886, the Muddy River segment was intended to be developed as a fresh water creek, in contrast to the salt water marsh of the Fens. Accordingly, in 1883 the Muddy River was channeled under Brookline Avenue through an eleven foot high wooden culvert to join the Fens, whose brackish water was excluded by water gates. Throughout the 1890s, the river was landscaped and improved by walkways, bridges, and bridle paths, but by the mid 1920s, the advent of the automobile saw the widening and straightening of the parkways and the introduction of traffic rotaries. During the 1930s and 1940s, various proposals were made to introduce rotaries and bridges to alleviate traffic congestion at the Park Drive/Brookline Avenue/Riverway intersections, but not until after World War II were any significant road improvements undertaken. In 1949-50, the Brookline Avenue gatehouse was demolished and the Audubon Road (Park Drive) bridge was widened to permit a right hand turn onto the Riverway. It was at this time that the portion of the park directly across the Sears Building was filled in, the river course being channeled into two new 72 inch reinforced concrete conduits 1,300 feet long, running between Brookline Avenue and the Riverway. This parcel was declared surplus in 1951, and sold to Sears Roebuck and Co. for $125,000 on May 25, 1954, for its present use as a parking lot.

The Emerald Necklace is listed in the National Register of Historic Places and is protected as a Boston Landmark.

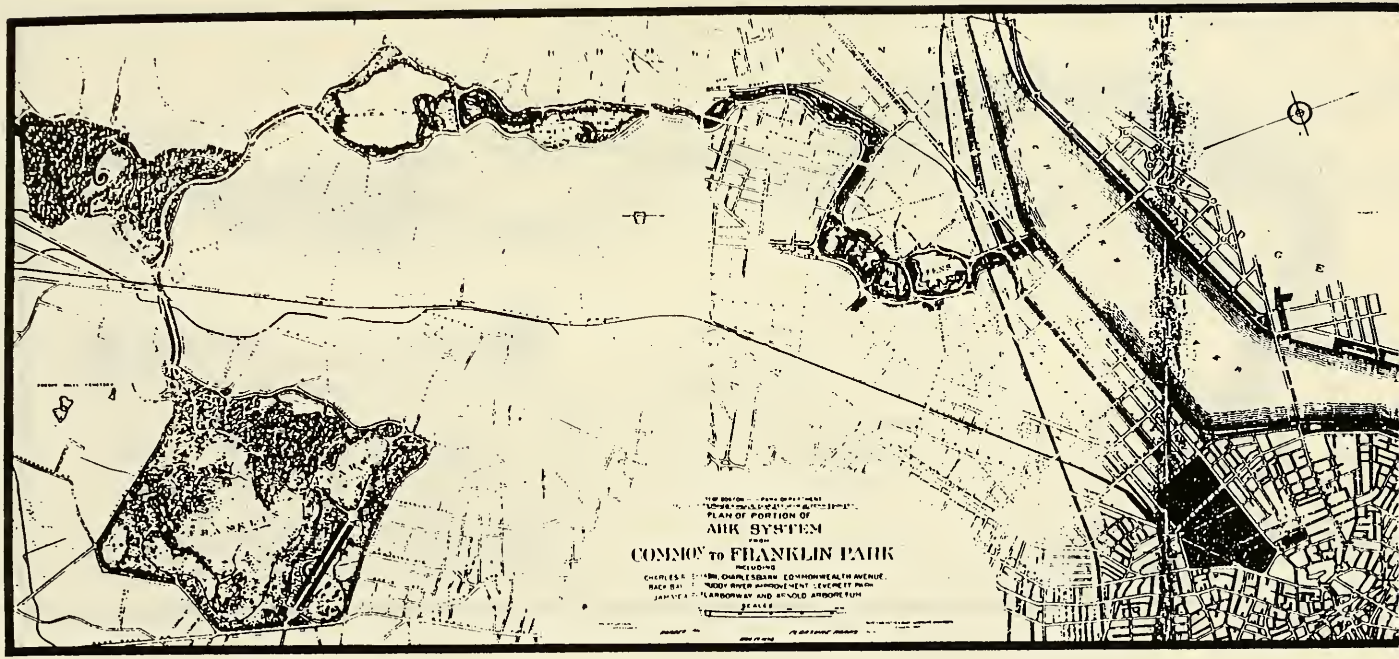
PLAN OF PORTION OF
PARK SYSTEM
FROM
COMMON to FRANKLIN PARK
INCLUDING
CHARLES R. BASIN, CHARLESBANK, COMMONWEALTH AVENUE,
BACK BAY, MUDDY RIVER IMPROVEMENT, LEVERETT PARK,
JAMAICA P., ARBORWAY AND ARNOLD ARBORETUM
SCALES

FIGURE 6.2-1
THE EMERALD NECKLACE

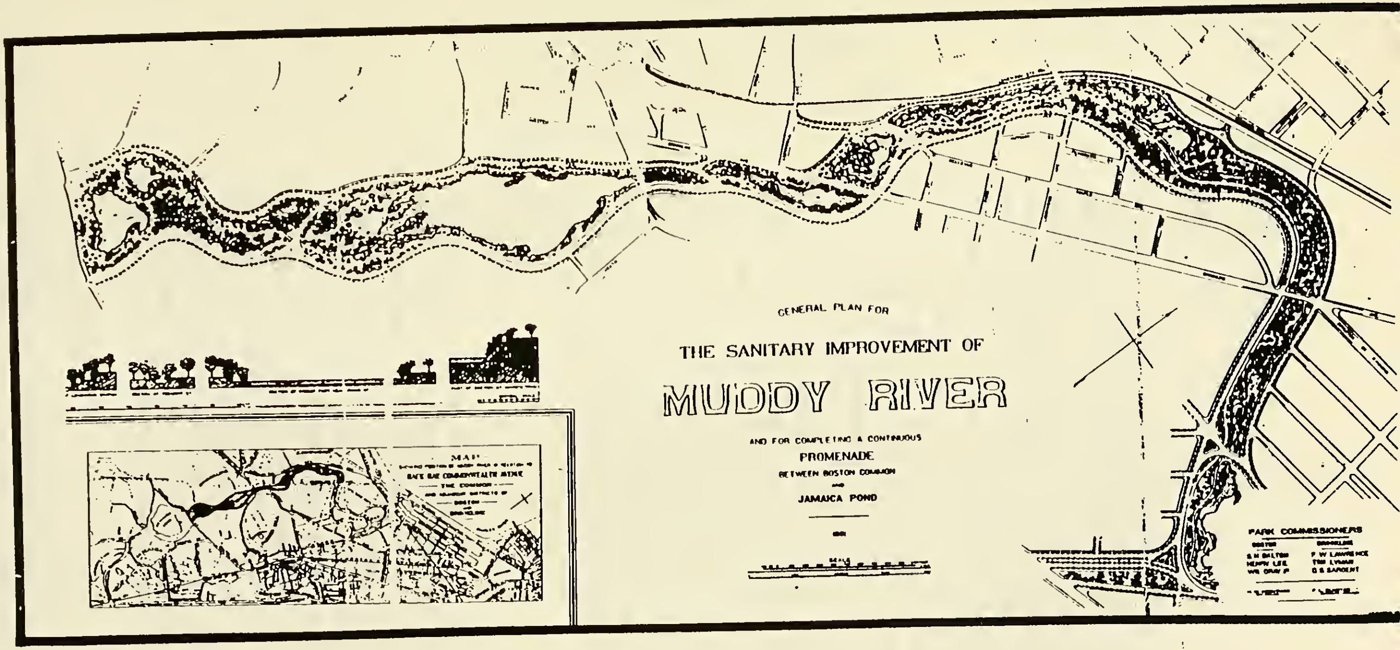

FIGURE 6.2-2
THE EMERALD NECKLACE: MUDDY RIVER SEGMENT

6.3 Fenway Neighborhoods

6.3.1 Fenway Park

The Fenway Park district and the West Fens are often grouped together as a single neighborhood, but historically stem from different roots. Prior to World War I, the Fenway began to be developed as an automobile service center along the heavily traveled Brookline Avenue. From its beginnings as the 1821 "Punch Bowl Road" between Brookline Village and the Boston and Roxbury Hill Dam, Brookline Avenue had been a major traffic link between Boston and the eastern towns along the Worcester Turnpike (Route 9). The opening of the Brookline Branch of the Boston and Worcester Railroad, in 1848, along a right of way roughly parallel to Brookline Avenue had discouraged residential development, with the result that by the 1920s, large tracts of land with good street frontages and convenient rail connections were available for automobile showrooms, filling stations, dealerships and associated light industry. Inexpensive land and convenient access to transportation also brought major league baseball to the area with the opening of Fenway Park Stadium in 1913. Commercial real estate speculation associated with the automobile industry has continued to the present, and is reflected in the inconsistencies in scale and style which characterize the image of the district today.

6.3.2 West Fens

In contrast to Fenway Park, the West Fens developed through residential real estate speculation on land reclaimed by Olmsted from the Back Bay Fens. Olmsted's original intent of extending Back Bay development into the Fens resulted in the subdivision of the West Fens into large building lots within a regular grid of streets south of Boylston Street. Little construction took place until after World War 1, when the demand for multi-family housing brought speculative land development to the neighborhood in the form of large apartment buildings. These served a rental market composed largely of students, faculty and staff of nearby colleges and museums as well as a mix of artists and musicians, a population which has remained relatively consistent to this day.

6.3.4 Kenmore Square

Historically, Kenmore Square has been a crossroads ever since the "Punch Bowl Road" (Brookline Avenue) was laid out to meet the

Boston and Roxbury Dam (Beacon Street) in 1821. It did not begin to assume its present form until after 1889, when electric streetcar service between Allston Depot and Park Square along Beacon Street diverted residential development away from the West Fens towards Brookline along Bay State Road. The extension into Brighton of Commonwealth Avenue and its development, along with Brookline Avenue, as an automobile sales and service center in the 1920s transformed Kenmore Square into an active commercial district, sustained in recent years by the rapid expansion of Boston University.

6.3.5 Audubon Circle

The Audubon Circle neighborhood started as a speculative real estate venture, envisioned by developer Henry M. Whitney in the late 1860s, to develop Beacon Street in Brookline along the lines of Boston's Back Bay. It was not fully launched until 1886, when Whitney retained Olmsted to redesign Beacon Street as a widened boulevard complete with an electric street railway connecting Allston Depot to Boston's Park Square via Kenmore Square. Though a connection was made with Audubon Road (Park Drive) by a bridge over the Boston and Albany Railroad tracks in 1894, the direction of development came from the direction of Kenmore Square instead of the West Fens. Small lot sizes maintained a low scale with townhouses built to strict design standards predominating throughout the 1890s. Larger apartment buildings appeared in the early 1900s and after 1910 automobile garages began to encroach along the railroad right of way.

6.3.6 Longwood

Originally part of the large Craft estate, the Longwood area began to be built up as a residential district in the 1890s, shortly after the completion of Olmsted's Back Bay Fens. With the opening of Simmons College on the Fenway in 1904, cultural and educational institutions began to move in, attracted by the availability of large flat lots suitable both for sizable buildings, and for their future expansion. The relocation of Harvard Medical School from Cambridge to Longwood Avenue in 1906 attracted numerous medical facilities to the area, which now hosts one of the greatest concentrations of hospitals, clinics, and research facilities in the nation.

6.4 Districts Meeting Criteria for National Register and Landmark Designation

6.4.1 Fenway District

This proposed district includes an extensive mix of residential and institutional buildings, frontages and park strips facing the Back Bay Fens between Ipswich and Louis Pasteur Streets. All buildings within the district date from the early 1890s through the 1920s and represent a full range of notable examples of the architectural styles of that era. These buildings include Willard T. Sears' Jacobean style New Riding Club (1892) at 52 Hemenway; Wheelwright and Haven's Massachusetts Historical Society (1897-1899) at 1154 Boylston Street, a National Registered Landmark; Shaw and Hunnewell's Renaissance Revival Boston Medical Library (1899-1901) at 8 The Fenway, now the Boston Conservatory of Music, Dance and Theatre; Peabody and Stearns residences (1900) at 22 and 24 The Fenway; Arthur Bowditch's Carleton Hotel (1901-02) at 1138 Boylston Street, now Berklee College of Music; Parker and Thomas' The Fenway Studios (1904-06) at 30 Ipswich Street, already listed in the National Register; Guy Lowell's Johnson Memorial Gates (1902) at the Westland Avenue entry to the Fens, his Neo-Classical Museum of Fine Arts (1907-38) at 465 Huntington Avenue, and his Beaux Arts apartment block (1904~05) at 67 Hemenway; Edward T.P. Graham's Neo-Classical Forsyth Dental Infirmary (1912-14) at 140 The Fenway; Allen and Collins' modern Gothic St. Clement's Church (1923-24) at 1103 Boylston street, formerly the Church of the Redemption; and Guy Lowell's Georgian Revival School of the Museum of Fine Arts (1926-27) at The Fenway.

6.4.2 Harvard Medical School District

This formal grouping of five Classical style buildings around a grassy quadrangle was designed for the Harvard Medical School by Shepley, Rutlan and Coolidge. Its completion in 1906 was a major stimulus to the development of the Longwood area as the home of many significant Boston medical facilities. Buildings included in the proposed district are Buildings A, B, C, D, and E of the school, at 230 and 240 Longwood Avenue.

6.4.3 Southwest Fenway District

This group of architecturally and historically significant institutional buildings facing the Fenway, Muddy River, and the Back Bay Fens include Willard T. Sears' Venetian Fenway (the Isabella Stewart Gardner Museum, (1900-02) at 280 The Fenway already listed in the National Register; the Classical Revival, Main Building of Simmons College (1901-1904) by Peabody and Stearns at 300 The Fenway; and the Modern Gothic Main Building of Emmanuel College (1913-16) by Maginnis and Walsh at 400 The Fenway. These, along with other buildings lining The Fenway between Fenway Court and Brookline Avenue, date from the period immediately following the implementation of Olmsted's park plan.

6.4.4 Symphony District

This district comprises an intact grouping of prominent architecturally distinguished buildings which serve as the homes of cultural, educational and religious institutions of major importance to the city of Boston and the nation and which represent important works by architects of local, regional and national significance. Included in the district are McKim, Mead and White's Symphony Hall (1899-1900, National Register); Wheelwright and Haven's Horticultural Hall (1900-01, National Register) and New England Conservatory of Music (1901-03, National Register); Charles Brigham's Christian Science Church Extension (1904-06); Peabody and Sterns' Cotting Industrial School (1903); Shepley, Rutlan and Coolidge's YMCA (1911-13); J. Williams Beal's Jewett Repertory Theatre, now the Huntington Theatre at Boston University (1924-25); and the Christian Science Publishing Society. These buildings are concentrated mainly along Massachusetts and Huntington Avenues.

6.5 Districts Meeting Criteria for National Register and Architectural Conservation District Designation

6.5.1 Audubon Circle District

Audubon Circle's collection of well-designed residential buildings dating from 1888 to c.1915 represents an extension of the fashionable Back Bay residential district into Brookline. Beacon Street and Audubon Circle, planned to the designs of Frederick Law Olmsted, are built up with substantial single family row houses, three-family houses and larger apartment complexes, among which are several S.D. Kelly groups of Queen Anne/Romanesque row houses (1888-95), the Renaissance Revival 875 Beacon Street (1895); W. L. Morrison's Jacobethan (1888-95) Beacon Street and 6-16 Keswick Street (1901); Kilham and Hopkins' Baronial three-family house (1905) and Audubon Court Apartments (1915); Benjamin Fox's Romanesque/Georgian

Revival Strathcona Terrace and Audubon Terrace (1903); the Beaux Arts-Jacobethan Inverness (c.1898); and the very fine Ralph Adams Cram Ruggles Church (1914), designed in the Georgian revival style.

6.5.2 Park Drive District

This interesting, contiguous collection of town houses and large apartment buildings facing the Back Bay Fens represents the highest quality designs in the West Fens during the period 1899-1930. These include Charles Cummings' Georgian Revival Robert Treat Paine, Jr. House (1899); Theodore M. Clark's Mansard/Queen Anne/Georgian Revival 107 Park Drive (1903); George N. Jacobs' 61-69 Park Drive (1921); and Brown and Hienan's 111 and 125-143 Park Drive (1922). The proposed district follows Park Drive between Queensberry Street and Kilmarnock Street.

6.5.3 St. Germain Street District

This proposed district represents the last intact pocket of modestly scaled brick row housing remaining in the vicinity of the 1970s Christian Science Center.

6.5.4 St. Stephens/Symphony Road District

This area encompasses much of the residential core of the East Fens and qualifies as a protected district for its inclusion of architecturally significant and substantially intact single family rows (1880s-1890s) and multiple unit 4 and 5 story residential buildings of high design quality dating from the late 1880s through the 1910s.

6.6 Designated Architectural Conservation District

6.6.1 Bay State Road/Back Bay West District

Located north of the Fenway Study Area, this district comprises a nearly uniform mix of brick row housing dating from the 1880s and 1890s when Back Bay residential development expanded into the Kenmore Square area.

6.7 Individual Building and Structures of Historic Significance

6 7.1 Robert Treat Paine Jr. House, 1 Queensberry Street

This substantial, 4-story brick Georgian Revival house is the oldest building in the West Fens. Built from 1899-1901 to a design by Charles K. Cummings for a noted Boston philanthropist and real estate developer, the house serves as a reminder that development of the West Fens was originally slated for stylish townhouses. The building has been recommended for National Register listing and inclusion in the proposed Park Drive Architectural Conservation District.

6.7.2 Simmons College Main Building, 300 The Fenway

Designed by Peabody and Stearns, this noteworthy 1901-1904 example of classical Revival educational architecture was the first of Simmons College's buildings to be erected on its Fenway campus. It marks the first appearance of institutional use in the now predominantly institutional Longwood area. This building has been recommended for National Register listing and inclusion within the Southeast Fenway Landmark District.

6.7.3 Emmanuel College Main Building, 400 The Fenway

Maginnis and Walsh's imposing 1913-1916 Modern Gothic academic building is the focus of Boston's first Catholic college for women. It has been recommended for National Register listing and inclusion within the Southeast Fenway Landmark District.

6.7.4 Church of the Disciples, 105 Jersey Street

This Georgian Revival church was built in 1905 as a Unitarian church in anticipation of future residential development similar to Back Bay's. It is now the home of the Seventh Day Adventist Temple and School. The building has not been surveyed or recommended for National Register listing.

6.7.5 Citgo Sign

A prominent example of contemporary advertising design, this sizable animated neon display sign in the form of a corporate logo was erected on the roof of the Boston University Bookstore building in the early 1970s . It was disconnected and slated for demolition in the early 1980s, but has since been restored, relit and maintained through the independent efforts of local preservationists. It has not been surveyed or recommended for National Register listing.

6.8 Relationship to Historic Districts and Buildings

In order to evaluate the impact of Olmsted Plaza upon surrounding historic districts and buildings, issues of design compatibility, shadow impacts, light and air reduction, proposed demolition and proposed alterations are examined below and compared to existing conditions. The design proposals for the Emerald Necklace park are also discussed in relation to the origin of park design and its subsequent development. Resources for this analysis include historic inventory forms form the BLC survey, field reports of the MHC, shadow diagrams, an independent analysis of the Muddy River restoration project by landscape management consultant/landscape historian Richard Heath, and plans and sections of the proposed project.

The design of Olmsted Plaza depends to a great extent on the restoration of the historic Sears Building and its reuse in an appropriate manner that will offer a positive contribution to the revitalization of the surrounding neighborhood. Accordingly, consideration will be given to the historic character not only at the Sears Building but also of the historic districts and buildings described in the previous section. The architects will continue to review the plans with the BRA and the BLC in order to ensure the appropriateness of design.

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